

ENERGY ENGINEERING ANALYSIS PROGRAM EIGHTH US ARMY, KOREA

VOLUME I

EXECUTIVE SUMMARY

FINAL REPORT

AUGUST 1981

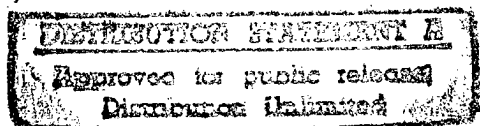
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WITH

THE CORPS OF ENGINEERS
PACIFIC OCEAN DIVISION



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PRC SYSTEMS SERVICES COMPANY

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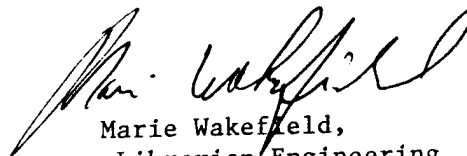


DEPARTMENT OF THE ARMY
CONSTRUCTION ENGINEERING RESEARCH LABORATORIES, CORPS OF ENGINEERS
P.O. BOX 9005
CHAMPAIGN, ILLINOIS 61826-9005

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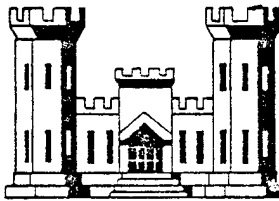
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1.0 INTRODUCTION

1.1 ENERGY ENGINEERING ANALYSIS PROGRAM

Executive Order 12003, dated 19 July 1977, set forth national goals in energy conservation and provided specific guidance to Federal agencies for reduction of energy consumption. The Army Energy Plan, published in February 1978, similarly set up goals for the Army. Succeeding publications and procedures established specific programs and the Energy Engineering Analysis Program (EEAP) evolved as the vehicle for generating documentation for energy conserving construction projects. In parallel, the Congress has authorized funds for such projects under the Energy Conservation Investment Program (ECIP).

1.2 CONSULTANTS' INVOLVEMENT

In September 1979, the Pacific Ocean Division (POD), Corps of Engineers, contracted with PRC Systems Services Company and M&E Pacific, Inc. (a joint venture) to perform Energy Engineering Analyses for 19 Eighth U.S. Army (EUSA) installations. The Final Report for the Program was submitted in April 1981.

1.3 EEAP REPORTS

1.3.1 Program Documents

The primary product of an EEAP is the preparation of Project Development Brochures (PDB's) and DD Forms 1391, Military Construction Project Data. These are the vehicles for processing budget requests for ECIP funding. Forty-five sets of PDB's and Forms 1391 have been submitted under this contract.

1.3.2 Study Reports

In addition to the budget documents, 10 volumes of technical reports have been published. This volume is the Executive Summary for the entire program. Table 1-1 lists all volumes in the report, arranged by facility engineer areas and covering the 19 individual installations.

Table 1-1. Report Format

ENERGY ENGINEERING ANALYSIS PROGRAM
EIGHTH U.S. ARMY, KOREA

<u>VOLUME NO.</u>	<u>TITLE</u>
I	EXECUTIVE SUMMARY
II	SEOUL Yongsan Garrison K-16 Airfield
III	UIJONGBU Camp Red Cloud Camp Stanley
IV	TONGDUCHON Camp Casey Camp Hovey H-220 Heliport
V	SONGSANDONG Camp Howze Camp Edwards Camp Pelham Camp Kittyhawk JSA MAC HQ Swiss-Swede Camp
VI	PYONGTAEK Camp Humphreys
VII	CHUNCHON Camp Long
VIII	TAEGU Camp Henry Camp Carroll Camp Walker
IX	PUSAN Hialeah
X	APPENDICES A Computer Programs B Cost Estimates C Unit IBOP Calculations D Audit Forms E Similar Building Lists F Waste in Operations G Utilities and Distribution Systems H Projects Investigated But Not Proposed I Solar Applications

2.0 SUMMARY

2.1 ENERGY ENGINEERING ANALYSIS PROGRAM

The overall goal of the Army Facility Energy Plan is to reduce energy consumption at military installations by 25% of that consumed in FY75 as the base year. The results of the Energy Engineering Analysis Program, increments A & B, for 19 installations of the 8th Army in Korea show that 18.2% of the reduction could be achieved by maintaining existing energy conservation programs and implementing the Energy Conservation Investment Program (ECIP) developed to date.

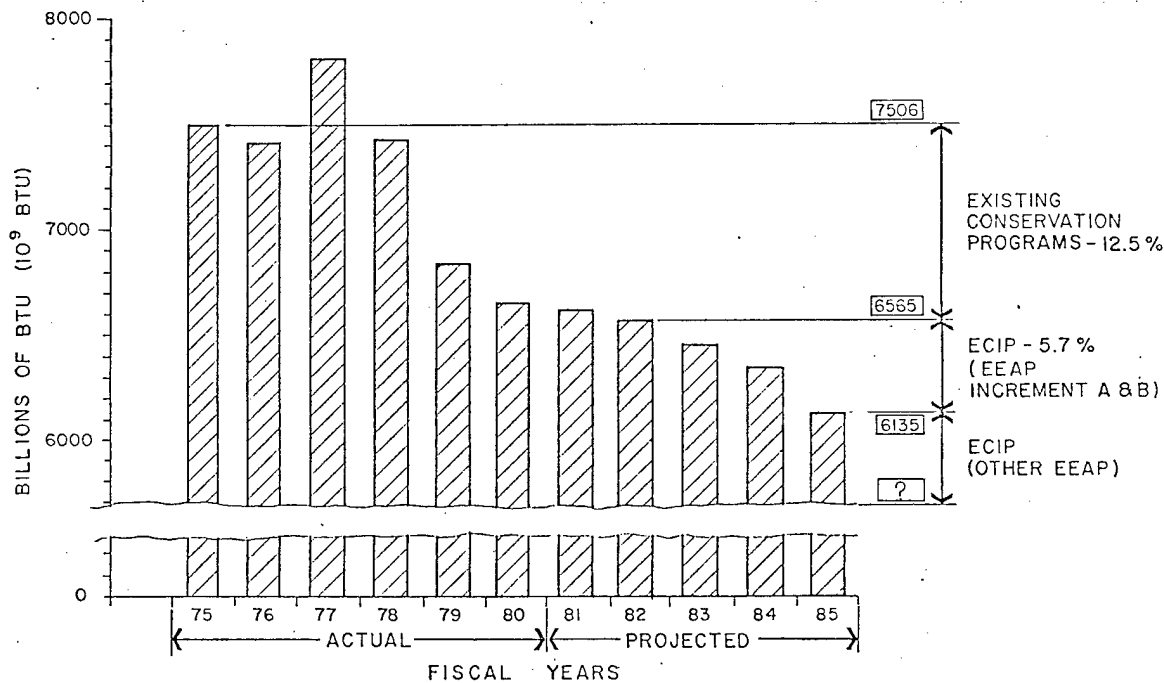


Figure 2-1. Total EUSA Energy Consumption and Projected Savings

The remaining reduction, as noted in Figure 2-1, would be achieved by the implementation of other energy conservation investments which would be identified after conducting other increments of the Energy Engineering Analysis Program.

2.1.1 Projected Energy Savings

The direct saving in Operation and Maintenance Costs due to ECIP projects will be \$9.9 million in the first year after construction of all projects. This saving is expected to increase thereafter as energy cost escalate.

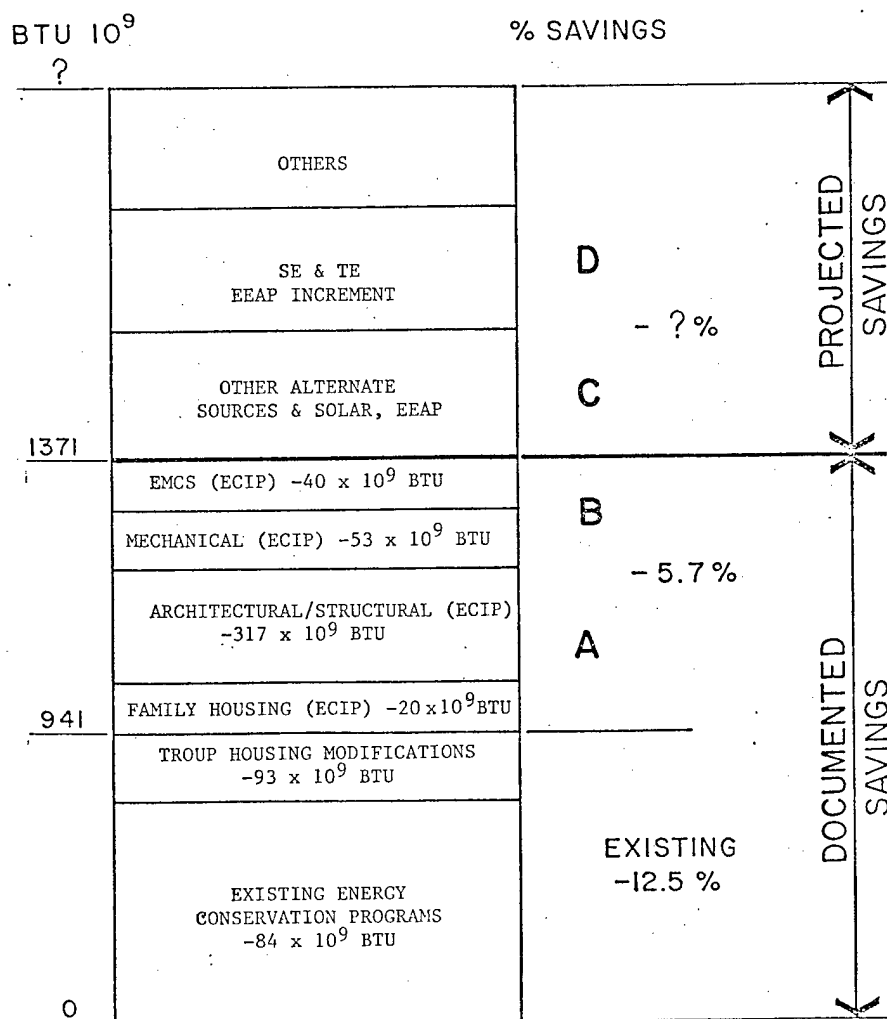


Figure 2-1-1. Total Saving Profile

As noted in Figure 2-1-1, a total of 430×10^9 British Thermal Units (BTU) could be saved annually by implementing energy conservation investments identified for Family Housing (2 installations), Architectural/Structural (18 installations), Mechanical (6 installations), and EMCS (1 installation). These energy savings represent a reduction of 2,600,000 gallons of fuel oil and 9,000,000 Kilowatthours (Kwh) of electricity which would not be required or purchased by the 8th Army.

2.1.2 Programmed ECIP Construction

The total cost of all projects at the times of construction will be \$20.1 million.

Dollar costs of projects by FY are as follows (see also figure 2-2):

	Architectural/Structural	Mechanical	EMCS
FY 1982	\$ 663,000	\$ -0-	\$ -0-
FY 1983	8,662,000	175,000	-0-
FY 1984	<u>7,062,000</u>	<u>1,875,000</u>	<u>1,691,000</u>
	\$16,387,000	\$2,050,000	\$1,691,000

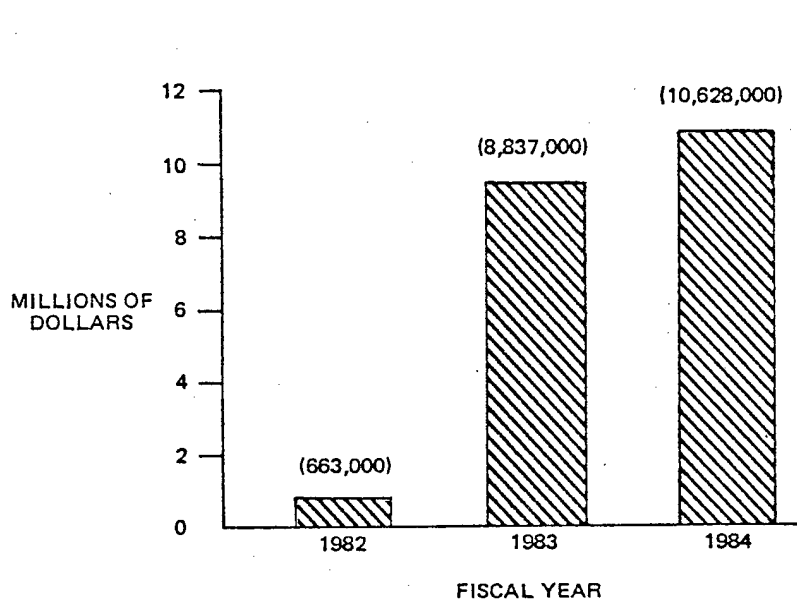


Figure 2-2. Project Submittals by Fiscal Year

2.2 AUDIT FINDINGS

2.2.1 Energy Savings Program in Progress

The Eighth Army has already implemented a spartan regimen of fuel oil allocations and turnoff and setback regulations, with impressive results (see figure 2-3).

The Troop Housing Upgrade Program, being pursued as an Eighth Army O&M project, includes many modifications that will contribute substantially to energy conservation. Annual savings of approximately 2 million kWh of electricity and 500,000 gallons of fuel oil can be expected.

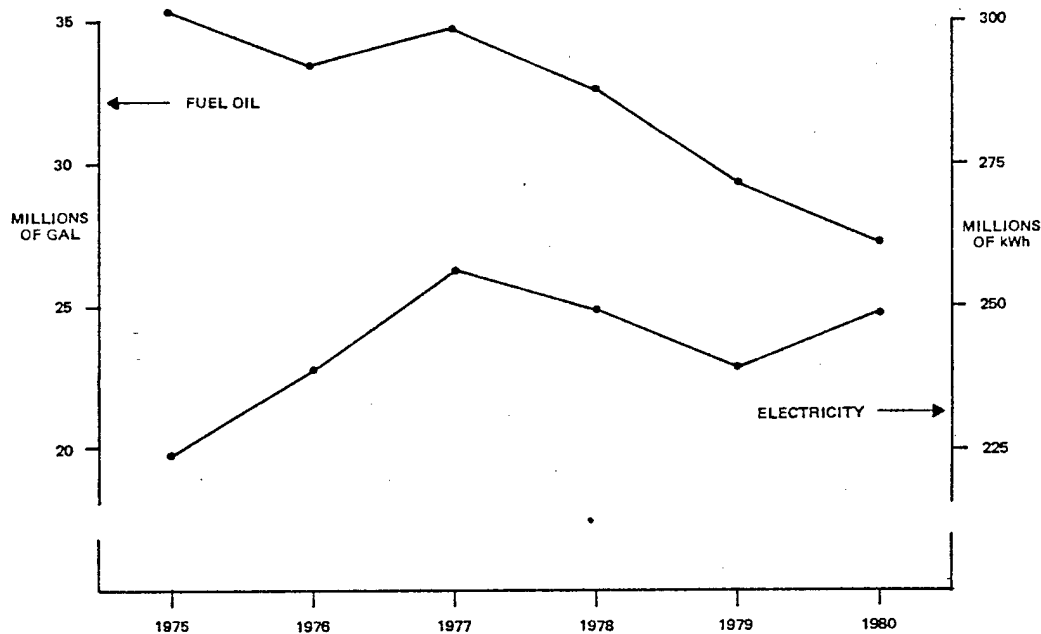


Figure 2-3. EUSA Energy Consumption

2.2.2 End-Use Analysis

Energy consumption by the entire EUSA can be broken down as follows: (All figures in thousands of MBtu.)

	<u>Fuel Oil</u>	<u>Electricity</u>
Space Heat	1,842	125
Space Cool	95	238
Domestic Hot Water	859	61
Lighting	-	1,055
Other, 19 bases	560	621
Other Installations	<u>666</u>	<u>666</u>
TOTAL	4,022	2,760

The major uses of fuel oil are seen to be space heating (over 50 percent) and domestic hot water (DHW) (25 percent). Fifty percent of consumed electricity is used for lighting.

Figure 2-4 is a graphic representation of the end-use analysis.

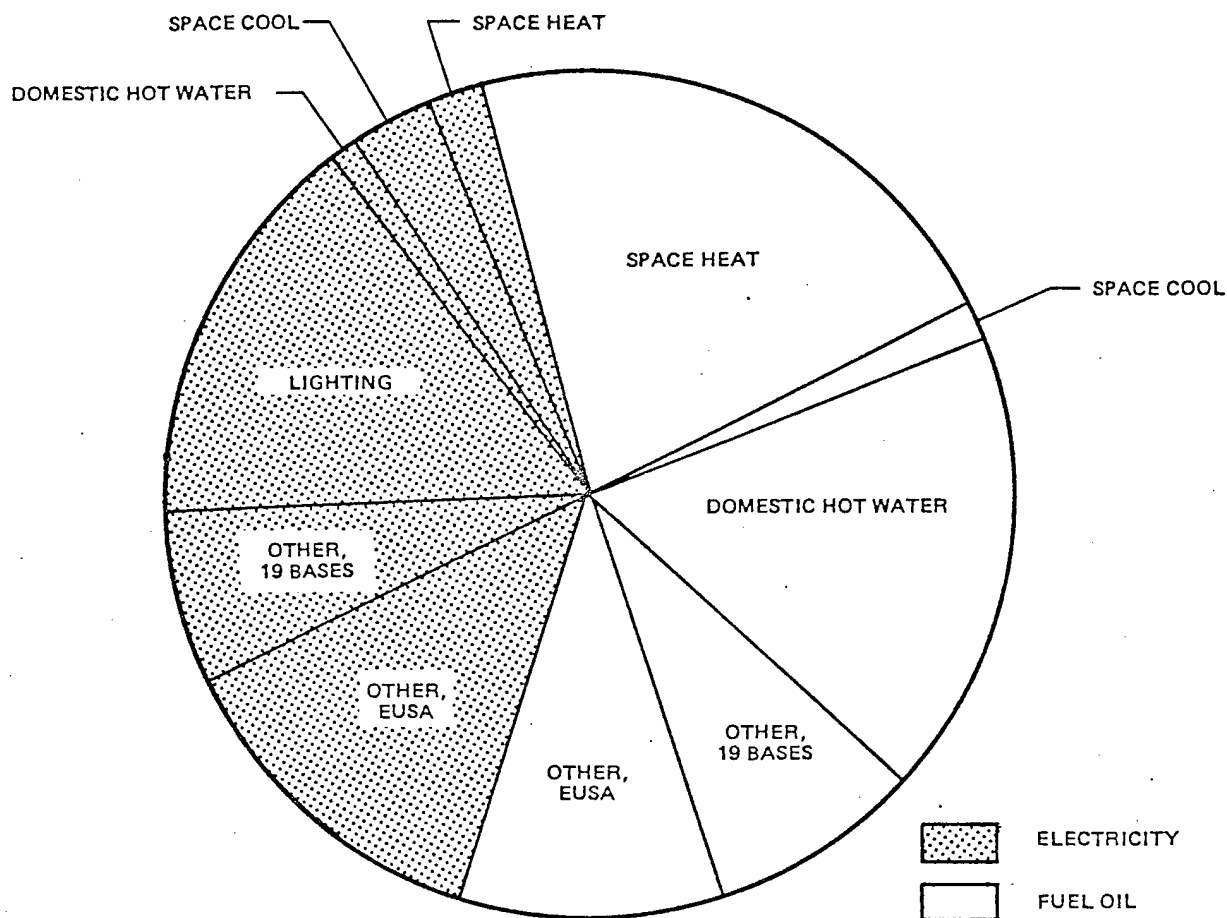


Figure 2-4. End-Use Analysis

In terms of gallons of fuel oil and kilowatthours of electricity, the same breakdown is as follows: (all figures in millions)

	<u>Fuel Oil</u>	<u>Electricity</u>
Space Heat	13.28	10.78
Space Cool	0.68	20.52
Domestic Hot Water	6.19	5.26
Lighting	-	90.95
Other, 19 bases	4.04	53.54
Other Installations	<u>4.81</u>	<u>57.45</u>
TOTAL	29.00	238.50

3.0 PROCEDURE

Performance of the contract fell into three phases - data gathering, analysis, and reporting.

3.1 DATA GATHERING/AUDIT PHASE

During the first phase, December 1979 to August 1980, the contractors spent in excess of 1,000 man-days in Korea examining drawings, recording energy consumption, and end-use data, performing detailed audits of individual buildings, and surveying individual items of equipment such as boilers, space heaters, and air-conditioners. The contractors also met with local suppliers to establish costs for in-country procurement. Information and support from the Facility Engineer Activity, Korea (FEAK) and from the Far East District was most helpful.

3.2 ANALYSIS PHASE

This phase was initiated as data became available from the first phase and continued through computer programming, design, and iteration of options. It consisted of reducing the data, calculating current energy consumption, postulating modifications to reduce consumption, computing energy savings to be realized, and estimating costs.

3.2.1 Preselection and Predesign of Modifications

From previous experience, potential modifications were approached in the following priorities:

- a. Turnoff and setback are properly the first priority because of the potentially large savings that can result from small investments. Turnoff and setback can be mechanized with timeclocks or operated through an Energy Monitor and Control System (EMCS). Timeclocks are more cost-effective in a situation with scattered and relatively few control points; EMCS is preferred for more numerous and denser applications.
- b. Ventilation, infiltration, and transmission are major causes of direct heat loss. Ventilation refers to intentional exhaust or intake of outside air, via fans, to provide essential fresh air in the building. Infiltration is the introduction of unconditioned air through cracks around doors and windows or through other apertures in the building envelope.

Insulating the walls and ceilings and installing double pane or storm windows will cut the rate at which heat is transferred through the building envelope. Cutting this rate by a third or a quarter is, in most cases, entirely practicable and this will be directly reflected in decreased fuel oil consumption.

- c. The general term equipment efficiencies covers a wide range of investigations and modifications. All boilers over 75 hp and all air-conditioning units over 30 tons on the 19 bases were analyzed for possible improvements. Projects such as feedwater preheat, waste heat recovery, combustion air preheat, and oxygen trim were examined and, where justifiable, recommended. The large, oil-energized, absorption chiller of Yongsan Hospital also was analyzed in depth. Package air-conditioners, which constitute the majority of such units of Korea, seldom offer significant savings opportunities. Information on liquid pumps in water and sewage systems was collected for each base. Very substantial improvements in lighting efficiency (lumens per watt) have become available in the past few years and advantage was taken of opportunities to replace incandescent fixtures with fluorescent, vapor, or halide types.

3.2.2 Calculating Savings, Costs, and Ratios

Proprietary computer programs were used for heating and cooling load, energy conservation, and cost-effectiveness calculations. Manual calculations were performed to check computer results and to solve special problems. Selected modifications were then reviewed in detail for compliance with ECIP criteria and FEAK/POD guidelines, documented, and prepared as Forms 1391 and PDB's.

3.3 PROGRAMMING AND REPORTS

3.3.1 Project Definition

Much of the programming effort was devoted to aggregating conservation measures for individual buildings and equipment into total packages for the installation.

The model building approach was used, which selects a number of typical buildings, each of which represents a group of similar buildings in construction, mission, size, and configuration. The representative building is audited in detail and the results extrapolated to the group on the basis of conditioned floor area. (Unique buildings were audited individually.) The following table shows the extent of audit coverage (floor areas are in 1,000's of square feet).

	Base Total		EEAP		Percentages	
	Bldgs.	Area	Bldgs.	Area	Bldgs.	Area
Yongsan Garrison	1364	4530	852	3698	62	82
Camp Humphreys	689	1994	425	1902	62	95
Camp Walker	212	773	132	639	62	83
Camp Henry	266	547	107	415	40	76
Camp Carroll	186	1424	110	1207	59	85
K-16 Airfield	33	135	26	127	79	94
Camp Casey/H-220	1226	2416	753	1799	61	74
Camp Hovey	451	672	289	492	64	73
Hialeah	260	547	175	431	67	79
Camp Red Cloud	316	671	193	593	61	88
Camp Stanley	275	659	162	590	59	90
Camp Howze	245	398	134	304	55	76
Camp Pelham	186	308	95	218	51	71
Camp Edwards	58	210	39	184	67	88
KH/SS/JSA MAC HQ	109	136	61	112	56	82
Camp Long	130	207	93	181	72	92
Total	6046	15601	3646	12892	60	83

3.3.2 Programming

For administrative and management convenience, documentation was "packaged" according to facility class/category code.

Preparation of 1391's and PDB's was programmed to conform with the following MCA program year submissions:

- a. FY 1982. Yongsan and Walker Family Housing (At the client's request, these submissions were accelerated to the earlier fiscal year.)
- b. FY 1983. Architectural/Structural and Central Heating (Mechanical) projects for the six bases in the original contract
- c. FY 1984. All other mechanical projects and all architectural/structural projects for the 13 bases in the contract revision. (No projects for JSA/MAC HQ met the criteria for the ECIP.)

3.3.3 Reports

This effort culminated in the recommendation of 45 projects. Forms 1391, "Military Construction Project Data," related PDB's, and 10 volumes of descriptive reports providing guidance to Area Facility Engineers (AFE's) and designers have been submitted.

4.0 MAJOR FINDINGS AND RESULTS

4.1 DESCRIPTION OF MAJOR ECIP MODIFICATIONS

4.1.1 EMCS

The EMCS recommended for Yongsan Garrison will control heating and cooling systems in 37 buildings and the boilers in the two central steam heating plants. 671 data points will be monitored.

The primary purpose of an EMCS is to control needed energy use and to eliminate unnecessary use. Secondly, an EMCS provides real time visibility of status and condition and furnishes hard copies of data for the record. It also provides a basis for planning, scheduling, and maintenance activities.

Figure 4-1 is a schematic presentation of the distributive hierarchy of Field Interface Devices (FID's), Multiplexers (MUX), and Central Control Unit (CCU) and lists the individual buildings in the system.

4.1.2 Clock Thermostats with Outside Air Override

Setting thermostatic controls back from 68°F to 58°F during periods of non-occupancy will save approximately 30 percent of the heating energy. Another step that can be accomplished with the timeclock installation is an override heating cutoff based on outside air temperature.

The project recommended here is a timer (figure 4-2) to be installed on warm-air furnaces. The installation should be secure, preferably in the utility room. An outside air temperature sensing thermostat overrides other controls to shut off all heating at outside air temperatures above some selected maximum. Individual temperatures for responses can be preset at any desired points and times.

4.1.3 Insulation, Weather Stripping, and Caulking

Fiberglass batts are most effective for ceiling insulation and can also be used in walls. Four inches of fiberglass batt insulation has an R value of 13.

Expanded polystyrene foam (and related chemical compounds) in the form of rigid boards or panels is also an excellent insulator. It does not sag or tear, has an R value of about 4 per inch, and is long-lived and easy to install, though

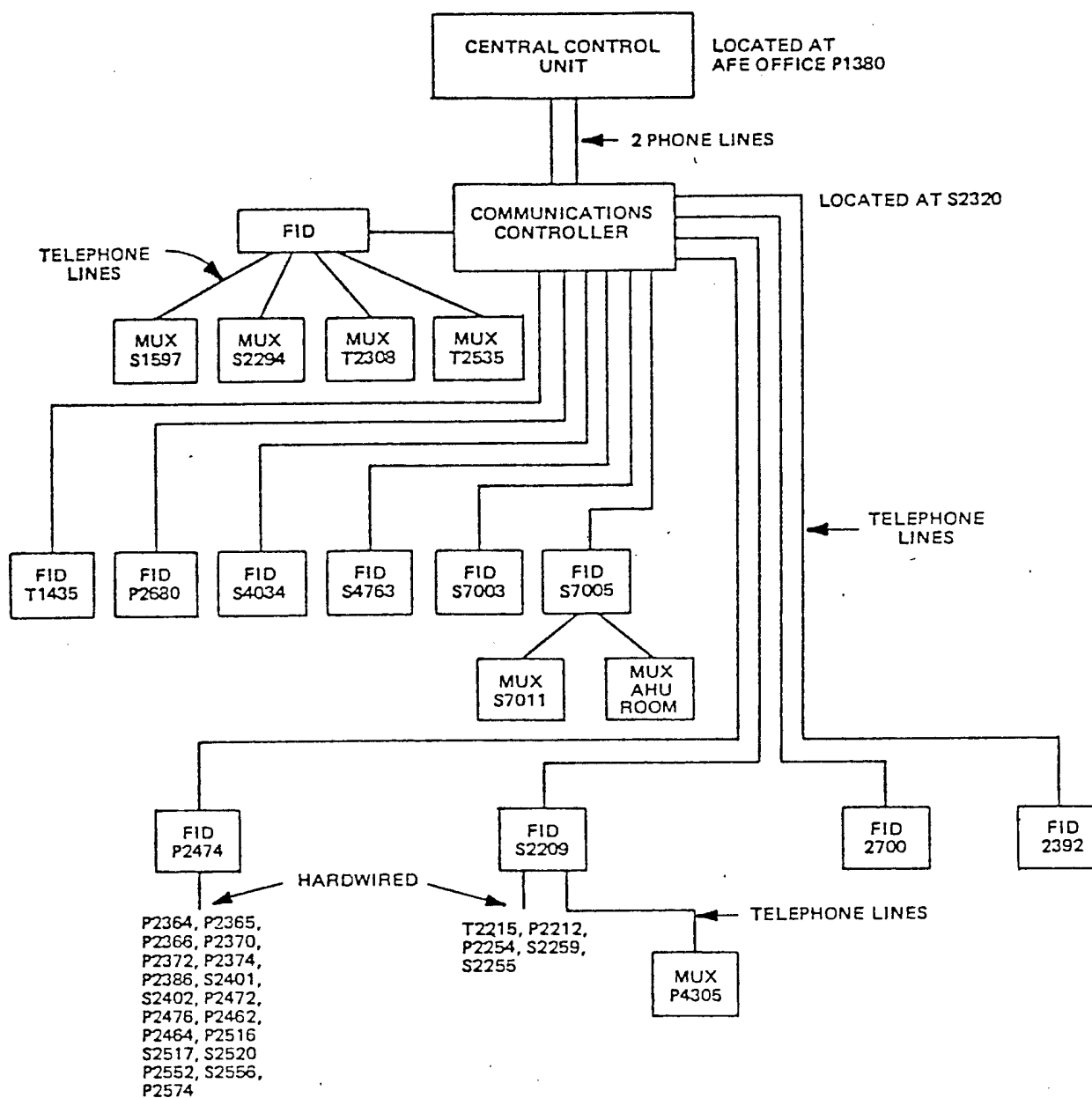


Figure 4-1. EMCS Hardware Layout.

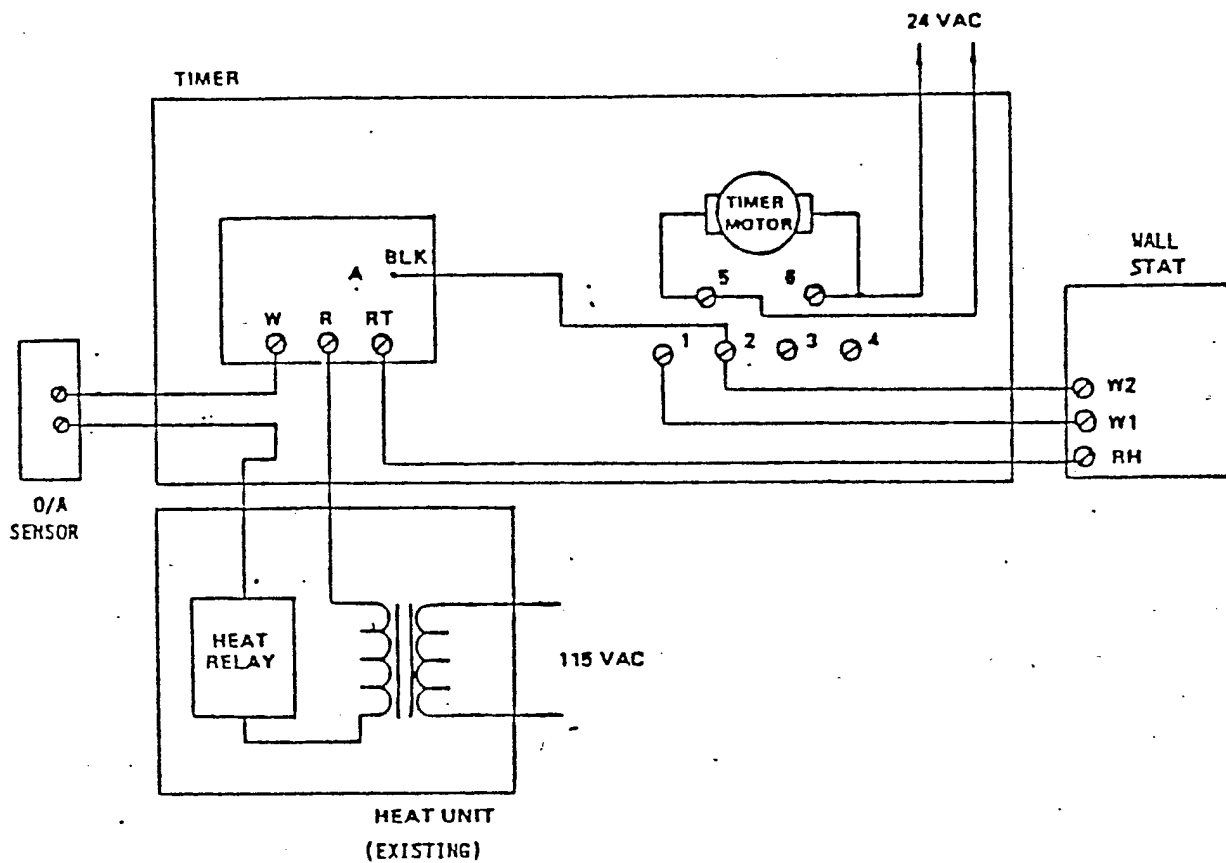


Figure 4-2. Clock Thermostat Diagram

more expensive than fiberglass. Projects in this analysis have recommended 2-inch panels applied to the outside of concrete masonry unit (CMU) walls. This practice avoids the loss of interior floor space, the expense of working around and replacing internal fixtures, and the disruption of indoor activities. A variety of finish textures, colors, and materials is available.

Outdoor air infiltrates a building through cracks and openings around windows and doors and through other apertures. Sealing these openings by installing weather stripping and caulking along the cracks is both effective and economical. Extruded metal door weather stripping is to be applied to all four edges of the door or jamb, depending upon configuration, on all exterior doors that open to a conditioned space. Window weather stripping is to be applied so that the entire crack length is sealed when the window is closed properly.

Sealing service apertures and caulking around all door and window frames is to be specified in the modification contracts. Caulking exterior wall penetrations, along floor slabs, and on external metal sheeting is particularly important in Quonset huts, to keep water out of the insulation.

4.1.4 Window Treatment

Storm windows or double pane windows will reduce energy consumption in a building. Curtains or drapes will provide even further reduction in energy use. Storm windows reduce heat losses through conduction and infiltration. Because of lower cost, they are recommended where the existing single pane window and frame are in good condition. Storm windows are available in standard two- or three-track configuration with operable sashes. Double pane windows provide 40- to 60-percent reduction of heat loss and a slight reduction of solar heat gain as well. They are single hung aluminum frame and include screens. This type fenestration is applied where existing window frames are in poor condition and subject to replacement.

4.1.5 Lighting

Commercial developments in this area over the past several years offer a wide variety of energy conservation options. Essentially, this is accomplished by substituting lower wattage lamps of higher efficiency while maintaining or improving lumen value and footcandles.

The substitutions can be one of the following, depending on total wattage: (1) incandescent replaced by high-pressure sodium or by high-efficiency fluorescent; (2) fluorescent replaced by either mercury vapor or by high-pressure sodium; and (3) mercury vapor replaced by high-pressure sodium.

4.1.6 Boiler Improvement

Oil burners typically require a greater percentage of air as the firing rate decreases to compensate for less effective mixing as airflow and velocity to the burner decreases. Energy savings can be achieved if the air/fuel ratio is modulated and maintained at the optimum ratio in response to an excess oxygen sensor. This control system will also modulate to correct for other variables that affect the combustion process, such as fuel temperature, fuel viscosity, combustion air temperature, and humidity. Major system components to be retrofitted are a sensor head, oxygen analyser/controller, modulating motor linkage,

and control panel with high-low fire set point adjustment. The O₂ trim retrofit is included in the EMCS package.

4.1.7 Project Data

Additional information on modifications and the specific recommendations made for each EUSA installation are given in the Forms 1391. Face sheets of these forms are included as appendix A to this volume for convenient reference.

4.2 MAINTENANCE AND REPAIR/MINOR CONSTRUCTION

The following items were recommended to FEAK during the course of this program. FY 1981 costs and FY 1982 savings are assumed.

	<u>E/C</u>	<u>Annual Savings</u> <u>MBtu</u>	<u>\$</u>	<u>CWE</u> <u>\$1000</u>
Buildings S2700 and S2392, Yongsan Garrison				
Replace 6,800 linear feet of underground steam supply and condensate return lines associated with building S2700, and 3,537 linear feet of lines associated with building S2392. Existing insulation has deteriorated so as to be virtually ineffective.	21.0	15,867	130,347	756.6
Building 666, Camp Carroll				
Replace 300 linear feet of uninsulated steam supply and condensate return lines with insulated lines.	15.5	339.9	4,939	22.0
Buildings S170 through S174, Camp Howze				
Replace deteriorated roof surfaces and water-soaked insulation.	23.5	1,127.4	16,383	47.4
Building S0114, Camp Edwards				
Replace nine deteriorated and warped doors.	14.5	227.4	3,305	15.7
Supply Point 48, Pusan				
Replace the 52 temporary refrigeration units. Insulation is deteriorated and water-soaked to the point of ineffectiveness.	37.2	4,974.0	55,609	133.7

4.3 UTILITIES AND DISTRIBUTION SYSTEMS

4.3.1 Electrical

There are substantial energy losses in the existing electrical distribution system contributed by direct and indirect causes. However, due to the high costs of material, equipment, and labor associated with electrical distribution work, no projects could be identified within ECIP criteria. The following maintenance activities for conservation are recommended.

4.3.1.1 Transformers

- Deenergize transformers supply unused facilities.
- Balance loading phases on secondary transformers.
- Deenergize refrigeration and heating transformers during their off seasons.
- Ventilate transformer vaults and shade outdoor transformer banks.
- Utilize efficient dry-type transformers.

4.3.1.2 Power Factor Correction

Low power factor occurs in lightly loaded motors and its correction will contribute greatly to the energy economy of distribution systems.

Low power factor increases losses in electrical distribution and utilization equipment (such as wiring, motors, and transformers) and reduces the load handling capability and voltage regulation of the electrical system.

As indicated by survey, or as identified at known inductive load centers, install capacitors to correct power factors. Inductive loads associated with electric motors can readily be corrected to better than 90-percent power factor. Capacitors should be installed on individual motors 3 hp and larger in size.

4.3.1.3 Motor/Load Matching

Original motor load calculation estimates are usually conservative and, as loads are reduced through conservation measures, the mismatch becomes even greater. If the ratio of the motor's load to the motor's horsepower rating is small, the motor will operate inefficiently. Correcting the power factor will still leave a substantial inefficiency due to size mismatch. Motors that are not loaded to at least 60 percent of their potential should be replaced whenever practical and certainly at any time a change-out is called for. A control system should be

established in supply channels to verify actual loads before replacing electric motors on a size-for-size basis.

4.3.2 Water and Sewage Systems

Energy consumption in water and sewage systems is primarily by liquid pumps. Such pumps are inherently quite efficient, given proper system design and pump sizing. The survey revealed that all such pumps were operable, with no reported leaks or seal damage, even though virtually all had exceeded their design lifetimes. Replacement is recommended but cannot be justified as an energy conservation measure.

4.4 PROJECTS INVESTIGATED BUT NOT RECOMMENDED

4.4.1 Conversion to Fuel Oil Heating in Relocatable Barracks

Electric resistance space heating was provided in the one-story H-type and the two-story relocatable barracks in Korea at the time of construction. The question of converting from electric energy to fuel oil energy (using either warm air or hot water as the medium) was examined in this analysis. The study shows that a warm-air furnace would have been a better economic choice originally and that conversion now from electricity to warm-air would be only marginally advantageous. Conversion in 1983 in a two-story relocatable barracks would save 795 MBtu of source energy annually but the cost would be approximately \$75,000, for an E/C ratio of 10.6.

4.4.2 Waste Heat Recovery - 500-Man Mess Halls

An analysis of the potential for waste heat recovery from 500-man mess hall dishwashers was carried out. The waste heat available from the smaller units amounts to 110 MBtu per year or 826 gallons of fuel oil. The construction cost is \$7,800 and the E/C ratio is 14.0. (Waste heat recovery in 1,000-man mess halls is cost-effective.)

4.4.3 Waste Heat Recovery - Diesel Generators

Building S2323 at Yongsan Garrison houses two 300 kW generators that supply uninterruptible and carefully regulated power to the communication complex in adjacent buildings, producing 190 kW of power. Efficiency is approximately 30 percent, meaning that 2.2×10^6 Btu/hr is consumed in the form of fuel oil to produce 648,470 Btu/hr in the form of electricity.

Assuming that 90 percent of the water jacket and exhaust gas energy could be recovered and that it could be distributed with 10-percent losses, 833,000 Btu/hr would be available for other uses. If this could replace fuel oil burned elsewhere at 85-percent efficiency, 8.6×10^9 Btu (equals 62,000 gallons or \$244,000 at 1985 prices) could be saved annually.

In order to take advantage of this very attractive conservation opportunity there must, of course, be a potential consumer within the limits of an economical distribution system. Because of the high values involved, extensive analyses were conducted in the attempt to define a cost-effective system. This attempt was unsuccessful and the project cannot be recommended.

4.4.4 Chilled Water Storage

Chilled water can be generated during off-peak hours and stored for use during periods of high demand. The presence of a storage tank does not reduce operating loads nor does it reduce the total energy consumption of the system. (In fact, there will be a slight increase in energy use because of pumping and heat gain in the tank.) The merit of chilled water storage lies in the ability to generate refrigeration without incurring or contributing to high demand charges. This is not an economic factor in Korea since the Eighth Army does not pay a demand fee.

4.4.5 Hot Water Storage

Considerations obtaining for hot water storage are similar to those for chilled water storage - storage allows a given demand to be met with a lower capacity generator. The same limitations also apply, the storage tank costs more than the saving from a smaller boiler.

4.4.6 Central Steam/Hot Water Boilers

Applications of feedwater economizers, combustion air preheaters, and blowdown heat recovery to 19 boilers at five central boiler installations at Yongsan were examined and found not to produce savings commensurate with their costs. As a general rule, such devices are cost-effective only on boilers of capacity greater than 500 hp. Table 4-1 summarizes the analysis.

Table 4-1. Boiler Improvements, Yongsan Garrison

Options	Annual Savings			Cost \$	Pay-Back Years	E/C
	Mega-Btu	Gal-Oil	\$			
<u>Feedwater Economizers</u>	4,870	35,030	110,344	1,137,800	10.3	4.3
<u>Combustion Air Heaters</u>	8,186	58,909	185,563	2,047,716	11.0	4.0
<u>Blowdown Heat Recovery</u>	1,366	9,829	30,961	148,421	4.8	9.2

4.5 SOLAR APPLICATIONS

The total solar energy that might be received on an area of 1 ft², facing due south and tilted 47° above the local horizontal, at 37° north latitude would be approximately 508,000 Btu per year (figure 4-3). This energy can be used effectively to preheat water for either domestic or space heating use.

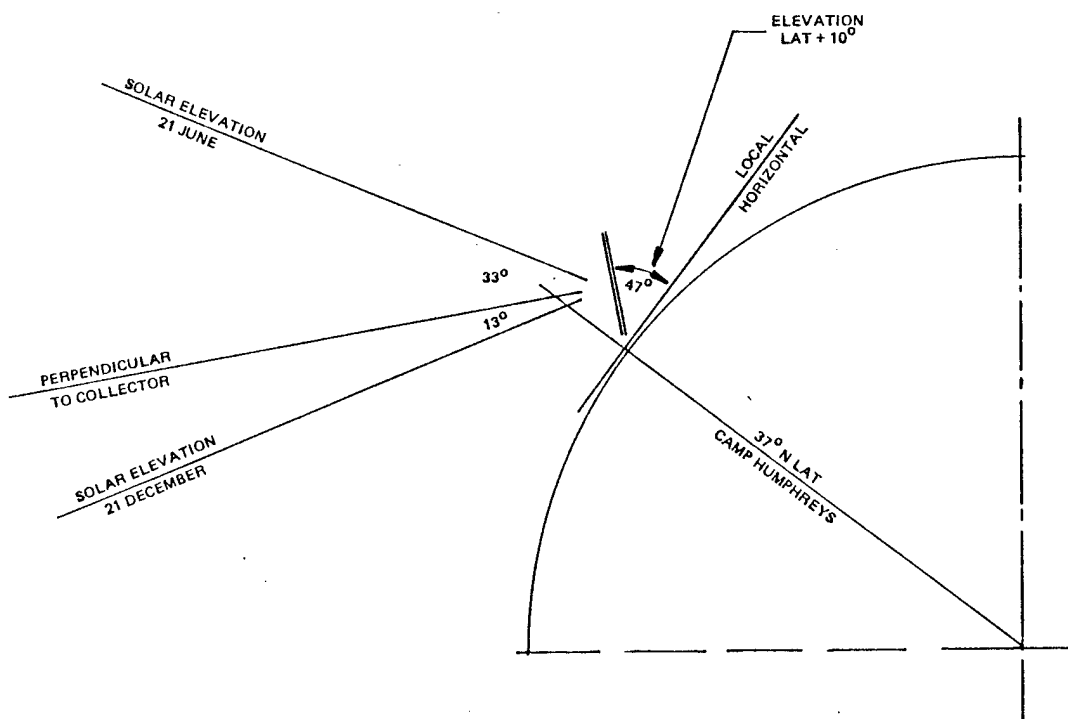


Figure 4-3. Solar Collector Geometry

To illustrate the energy and economic aspects of solar heat collectors in Korea, postulate a 1000 ft² collector adjacent to building S0758, an EM Barracks, at Camp Humphreys. A 25-year expected life will allow full amortization of the investment and the building already has a hot water space heating installation. Given minor additional plumbing to allow the application of solar energy for either space or domestic hot water heating, the full output of the collector could be used year round. The project is to be funded in the FY 1983 budget and will be operational in January 1984. Solar energy will replace fuel oil, whose price in that year is estimated to be \$3.15 per gallon.

4.5.1 Savings

The University of Wisconsin FCHART program gives the following monthly maximum collection values for the configuration described above.

Month	<u>Btu</u> ft ² mo	Month	<u>Btu</u> ft ² mo
January	32,800	July	46,500
February	35,200	August	46,800
March	45,300	September	44,400
April	48,000	October	43,600
May	48,800	November	38,100
June	47,100	December	31,700

The total for the year is 508,300 Btu/ft² or 508.3 MBtu for the 1000 ft² array. This must be reduced for a sky clearness factor (say 75 percent) and for collector efficiency (40 percent is a liberal value, using manufacturers' data).

$$508.3 \frac{\text{MBtu}}{\text{year}} \times 0.75 \times 0.40 = 152.49 \frac{\text{MBtu}}{\text{year}}$$

This available energy would replace fuel oil, which now heats water at 65 percent efficiency.

$$\frac{152.49}{0.1387 \times 0.65} = 1691.4 \text{ gal saved per year}$$

$$1691.4 \text{ gal/yr} \times 3.15 \text{ \$/gal} = \$5328 \text{ saved in the first year}$$

4.5.2 Costs

Solar collectors, insulated storage tanks, and piping are available in Korea. The following prices are estimated:

<u>Item</u>	<u>Material</u>	<u>Labor</u>	
Collector (1000 ft ²)	17,000	5,700	
Insulated tank (1200 gal)	2,500	500	
Piping (600 LF)	<u>3,000</u>	<u>2,000</u>	
Total			30,700

The several markups bring this total to \$43,700.

The monitoring and control devices required by ETL 1110-3-302, 14 March 1979, should be procured in the United States and are expected to have an installed cost of \$9,600.

These two figures, escalated to 1984, give a current working estimate of \$81,000 for the project.

Costs for maintenance, operations, and repairs are not included.

4.5.3 Evaluation

The E/C ratio for this project is 152.49 MBtu divided by \$81,000 or 1.88. The simple payback period is 15 years and the B/C ratio is 1.64.

In accordance with ETL 1110-3-302, the 25-year cost savings, exclusive of any maintenance and replacement costs, is greater than the original investment and the project is cost-effective.

The project does not, however, meet the criteria for ECIP funding and a Form 1391 is not being submitted.

The payback formula is:

$$\begin{aligned}
 p &= \frac{\ln \left[1 + \frac{c}{s} \left(\frac{r}{1+r} \right) \right]}{\ln (1+r)} \\
 &= \frac{\ln \left[1 + \frac{81,000}{5328} \left(\frac{0.10}{1+0.10} \right) \right]}{\ln (1+0.10)} \\
 &= 9.1
 \end{aligned}$$

The investment cost is recovered in less than the expected life of 25 years.

A P P E N D I X A

Executive Summary

Final Report

DD Form 1391

FOR OFFICIAL USE ONLY (WHEN DATA IS ENTERED)

1. DATE 11-13-80	2. FISCAL YEAR 1982	3. DEPARTMENT ARMY		4. INSTALLATION YONGSAN GARRISON- FH - KS 948
5. PROPOSED AUTHORIZATION \$ 616,000		6. PRIOR AUTHORIZATION P.L.		7. CATEGORY CODE NUMBER 711
10. PROPOSED APPROPRIATION \$ 616,000		11. BUDGET ACCOUNT NUMBER 6100		12. PROJECT NUMBER
13. PROJECT TITLE Architectural & Structural Modifications				
9. STATE/COUNTRY KOREA				
14. TYPE OF CONSTRUCTION				
15. TYPE OF WORK				
16. PHYSICAL CHARACTERISTICS OF PRIMARY FACILITY				
17. TYPE OF DESIGN				
18. REPLACEMENT				
19. DESCRIPTION OF WORK TO BE DONE				
20. PRIMARY FACILITY				
21. SUPPORTING FACILITIES				
22. TOTAL PROJECT COST				

23. QUANTITATIVE DATA		25. REQUIREMENT FOR PROJECT	
24. RELATED PROJECTS		26. FUNDING DATA	
27. TOTAL REQUIREMENT		28. FUNDING DATA	
29. EXISTING SUBSTANDARD		30. FUNDING DATA	
31. EXISTING ADEQUATE		32. FUNDING DATA	
33. FUNDED, NOT IN INVENTORY		34. FUNDING DATA	
35. ADEQUATE ASSETS (c + d)		36. FUNDING DATA	
37. UNFUNDED PRIOR AUTHORIZATION		38. FUNDING DATA	
39. INCLUDED IN FY		40. FUNDING DATA	
41. DEFICIENCY (e - g - f - h)		42. FUNDING DATA	
43. RELATED PROJECTS		44. FUNDING DATA	

This project is required to meet stated goals of energy use reduction. It is submitted as part of the energy conservation investment program (ECIP). The addition of wall and ceiling insulation, window treatment and weather stripping will reduce winter heat loss and/or summer heat gain, thereby reducing energy consumption. This project will result in 19.2 mega BTU annual energy savings per thousand dollars cost, (E/C ratio), and a benefit-to-cost ratio (B/C ratio) of 8.3. Total annual energy savings is estimated at 11,810.6 mega BTU. A total dollar savings of \$213,185 per year will result in a simple payback period of 2.9 years. If this project is not effected, energy will continue to be needlessly wasted, contrary to national goals. This project has been reviewed and it has been determined that an EIS, pursuant to PL91-190 is not required.

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1. DATE 11-13-80		2. FISCAL YEAR 1983		3. DEPARTMENT ARMY		4. INSTALLATION YONGSAN GARRISON - KS 948	
5. PROPOSED AUTHORIZATION \$1,478,000				6. PRIOR AUTHORIZATION P.L.			
7. CATEGORY CODE NUMBER 442, 131, 211, 610, 141, 214, 217, 441				8. PROGRAM ELEMENT NUMBER			
10. PROPOSED APPROPRIATION \$1,478,000				11. BUDGET ACCOUNT NUMBER 6100			
12. PROJECT NUMBER				13. PROJECT TITLE ARCHITECTURAL & STRUCTURAL MODIFICATIONS			
14. TYPE OF CONSTRUCTION				20. PRIMARY FACILITY			
a. PERMANENT X				A. WALL INSULATION, BOARDS, R=8			
b. SEMI-PERMANENT X				B. CEILING INSULATION, BATTS, R=19			
c. TEMPORARY				C. DOOR WEATHER STRIPPING			
15. TYPE OF WORK				D. WINDOW WEATHER STRIPPING			
a. NEW FACILITY				E. WINDOW TREATMENT, DOUBLE PANE			
b. ADDITION				F. WINDOW TREATMENT, STORM WINDOW			
c. ALTERATION X				G. LIGHTING MOD., INC. TO FLR			
d. CONVERSION				H. LIGHTING MOD., INC. TO HPS			
e. OTHER (Specify)				21. SUPPORTING FACILITIES			
16. REPLACEMENT							
17. TYPE OF DESIGN							
a. STANDARD DESIGN X							
b. SPECIAL DESIGN							
c. DRAWING NO.							
18. PHYSICAL CHARACTERISTICS OF PRIMARY FACILITY				22. TOTAL PROJECT COST			
a. NO. OF BLDGS. 100				See Attached List			
b. DESIGN CAPACITY NA				c. GROSS AREA NA			
c. COOLING NA				d. WIDTH NA			
19. DESCRIPTION OF WORK TO BE DONE				e. COST (\$ NA)			
Work will consist of the following modifications:							
1. Wall insulation, boards, R8 in 83 buildings.							
2. Ceiling insulation, batts, R19 in 39 buildings.							
3. Weather stripping for doors in 80 buildings.							
4. Weather stripping for windows in 15 buildings.							
5. Double pane windows in 4 buildings.							
6. Storm windows in 76 buildings.							
7. Lighting modification, incandescent to flr. in 57 buildings.							
8. Lighting modification, incandescent to HPS in 5 buildings.							

23. QUANTITATIVE DATA		25. REQUIREMENT FOR PROJECT	
a. TOTAL REQUIREMENT (U/M NA)		This project is required to meet stated goals of energy use reduction. It is submitted as part of the energy conservation investment program (ECIP). The addition of wall and ceiling insulation, window treatment, weather stripping and lighting modifications will reduce winter heat loss and/or summer heat gain, thereby reducing energy consumption. This project will result in 24.2 mega BTU annual energy savings per thousand dollars cost, (E/C ratio), and a benefit-to-cost ratio (B/C ratio) of 12.1. Total annual energy savings is estimated at 35,722.8 mega BTU. A total dollar savings of \$779,823 per year will result in a simple payback period of 1.9 years. If this project is not effected, energy will continue to be needlessly wasted contrary to national goals. This project has been reviewed and it has been determined that an EIS, pursuant to PL 91-190 is not required.	
b. EXISTING SURSTANDARD			
c. EXISTING ADEQUATE			
d. FUNDED, NOT IN INVENTORY			
e. ADEQUATE ASSETS (c + d)		AUTHORIZED FUNDED	
f. UNFUNDED PRIOR AUTHORIZATION			
g. INCLUDED IN FY PROGRAM			
h. DEFICIENCY (a - b - c - f - g)			
24. RELATED PROJECTS NA			

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1. DATE 11-13-80	2. FISCAL YEAR 1983	3. DEPARTMENT ARMY		4. INSTALLATION YONGSAN GARRISON - KS 948	
5. PROPOSED AUTHORIZATION \$ 831,000		6. PRIOR AUTHORIZATION P.L.		7. STATE/COUNTRY KOREA	
10. PROPOSED APPROPRIATION \$ 831,000		11. BUDGET ACCOUNT NUMBER 6100		12. PROJECT NUMBER	
SECTION A - DESCRIPTION OF PROJECT					
14. TYPE OF CONSTRUCTION					
15. TYPE OF WORK					
16. REPLACEMENT					
17. TYPE OF DESIGN					
18. PHYSICAL CHARACTERISTICS OF PRIMARY FACILITY					
19. DESCRIPTION OF WORK TO BE DONE					
20. PRIMARY FACILITY					
21. SUPPORTING FACILITIES					
22. TOTAL PROJECT COST					
SECTION B - COST ESTIMATES					
23. QUANTITATIVE DATA					
24. RELATED PROJECTS					
25. REQUIREMENT FOR PROJECT					
26. TOTAL REQUIREMENT					
27. EXISTING SUBSTANDARD					
28. EXISTING ADEQUATE					
29. FUNDED, NOT IN INVENTORY					
30. ADEQUATE ASSETS (c + d)					
31. UNFUNDED PRIOR AUTHORIZATION					
32. INCLUDED IN FY PROGRAM					
33. DEFICIENCY (a - b - c - d - e)					
34. RELATED PROJECTS					

FOR OFFICIAL USE ONLY (WHEN DATA IS ENTERED)

1. DATE 11-13-80	2. FISCAL YEAR 1983	3. DEPARTMENT ARMY		4. INSTALLATION YONGSAN GARRISON - KS 948
5. PROPOSED AUTHORIZATION \$ 1,243,000		6. PRIOR AUTHORIZATION P.L.		7. CATEGORY CODE NUMBER 740,550,730,510
10. PROPOSED APPROPRIATION \$ 1,243,000		11. BUDGET ACCOUNT NUMBER 6100		9. STATE/COUNTRY KOREA
13. PROJECT TITLE ARCHITECTURAL STRUCTURAL MODIFICATIONS		12. PROJECT NUMBER		14. PROJECT TITLE ARCHITECTURAL STRUCTURAL MODIFICATIONS

SECTION A - DESCRIPTION OF PROJECT				SECTION B - COST ESTIMATES			
14. TYPE OF CONSTRUCTION				20. PRIMARY FACILITY			
15. TYPE OF WORK				21. SUPPORTING FACILITIES			
a. PERMANENT	X	a. NO. OF BLDGS.	10	a. WALL INSULATION, BOARDS, R8	SF	(179965)	COST (\$000)
b. SEMI-PERMANENT	X	b. DESIGN CAPACITY	NA	b. WALL INSULATION, BATTS, R13	SF	(113372)	521
c. TEMPORARY	X	c. COOLING	NA	c. CEILING INSULATION, BATTS, R19	SF	(89910)	173
d. NEW FACILITY		d. DESCRIPTION OF WORK TO BE DONE	NA	d. CEILING INSULATION, BATTS, R19	SF	(52597)	105
e. ADDITION		Work will consist of the following modifications:		e. DOOR WEATHER STRIPPING	LF	(12982)	73
f. ALTERATION	X	1. Wall insulation, boards, R8 in 36 buildings.		f. WINDOW WEATHER STRIPPING	LF	(5278)	35
g. CONVERSION		2. Wall insulation, batts, R13 in 37 buildings.		g. WINDOW TREATMENT, DOUBLE PANE	SF	(14261)	12
h. OTHER (Specify)		3. Ceiling insulation, batts, R19 in 18 buildings.		h. WINDOW TREATMENT, STORM WINDOW	SF	(25312)	172
i. REPLACEMENT		4. Ceiling ins. for Quonset huts, batts, R19 in 31 bldgs.		i. LIGHTING MOD., INC. TO ELR	W	(70317)	65
j. TYPE OF DESIGN		5. Weather stripping for doors in 100 buildings.		j. LIGHTING MOD., INC. TO HPS	W	(86850)	64
k. STANDARD DESIGN	X	6. Weather stripping for windows in 29 buildings.					
l. SPECIAL DESIGN		7. Double pane windows in 14 buildings.					
m. DRAWING NO.		8. Storm windows in 54 buildings.					
		9. Translucent sandwich fenestration (80%) in 1 bldg.					
		10. Lighting modification, inc. to flr. in 21 buildings.					
		11. Lighting modification, inc. to HPS in 2 buildings.					
22. TOTAL PROJECT COST				\$ 1243			

23. QUANTITATIVE DATA		25. REQUIREMENT FOR PROJECT	
(U/M NA)			
a. TOTAL REQUIREMENT	()		
b. EXISTING SUBSTANDARD	()		
c. EXISTING ADEQUATE			
d. FUNDED, NOT IN INVENTORY			
e. ADEQUATE ASSETS (c + d)			
f. UNFUNDED PRIOR AUTHORIZATION			
g. INCLUDED IN FY PROGRAM			
h. EFFICIENCY (a - f - g)			
i. RELATED PROJECTS	NA		

This project is required to meet stated goals of energy use reduction. It is submitted as part of the energy conservation investment program (ECIP). The addition of wall and ceiling insulation, window treatment, weather stripping and lighting modifications will reduce winter heat loss and/or summer heat gain, thereby reducing energy consumption. This project will result in 23.9 mega BTU annual energy savings per thousand dollars cost, (E/C ratio), and a benefit-to-cost ratio (B/C ratio) of 9.6. Total annual energy savings is estimated at 29,725.4 mega BTU. A total dollar savings of \$628,400 per year will result in a simple payback period of 2.0 years. If this project is not effected, energy will continue to be needlessly wasted contrary to national goals. This project has been reviewed and it has been determined that an EIS, pursuant to PL 91-190 is not required.

FOR OFFICIAL USE ONLY (WHEN DATA IS ENTERED)

1. DATE 11-13-80	2. FISCAL YEAR 1983	3. DEPARTMENT ARMY		4. INSTALLATION K-16 AIRFIELD - KS 508
5. PROPOSED AUTHORIZATION \$ 86,000		6. PRIOR AUTHORIZATION P.L.		
10. PROPOSED APPROPRIATION \$ 86,000		11. BUDGET ACCOUNT NUMBER 6100		
12. PROJECT NUMBER 6100		13. PROJECT TITLE ARCHITECTURAL & ST. RUC. PLURAL MODIFICATIONS		
14. TYPE OF CONSTRUCTION		15. PROJECT TITLE ARCHITECTURAL & ST. RUC. PLURAL MODIFICATIONS		
a. PERMANENT		20. PRIMARY FACILITY		
b. SEMI PERMANENT	X	21. SUPPORTING FACILITIES		
c. TEMPORARY	X			
15. TYPE OF WORK		22. TOTAL PROJECT COST		
a. NEW FACILITY				
b. ADDITION				
c. ALTERATION	X			
d. CONVERSION				
e. OTHER (Specify)				
16. REPLACEMENT				
17. TYPE OF DESIGN	X			
a. STANDARD DESIGN	X			
b. SPECIAL DESIGN				
c. DRAWING NO.				

23. QUANTITATIVE DATA		25. REQUIREMENT FOR PROJECT	
U/M NA			
a. TOTAL REQUIREMENT			
b. EXISTING SUBSTANDARD			
c. EXISTING ADEQUATE			
d. FUNDED, NOT IN INVENTORY			
e. ADEQUATE ASSETS (c + d)			
f. UNFUNDED PRIOR AUTHORIZATION			
g. INCLUDED IN FY 1983 PROGRAM			
h. DEFICIENCY (a - g - f - e)			
24. RELATED PROJECTS	NA		

This project is required to meet stated goals of energy use reduction. It is submitted as part of the energy conservation investment program (ECIP). The addition of wall and ceiling insulation, window treatment, weather stripping and lighting modifications will reduce winter heat loss and/or summer heat gain, thereby reducing energy consumption. This project will result in 27.9 mega BTU annual energy savings per thousand dollars cost (E/C ratio), and a benefit-to-cost ratio (B/C ratio) of 11.3 Total annual energy savings is estimated at 2,388.7 mega BTU. A total dollar savings of \$53,630 per year will result in a simple payback period of 1.6 years. If this project is not effected, energy will continue to be needlessly wasted, contrary to national goals. This project has been reviewed and it has been determined that an EIS, pursuant to PL91-190 is not required.

1. COMPONENT ARMY	FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA			2. DATE 11-19-80
3. INSTALLATION AND LOCATION CAMP STANLEY - KS 284, KOREA		4. PROJECT TITLE ARCHITECTURAL & STRUCTURAL MODIFICATIONS (INCLUDING WARM AIR FURNACES)		
5. PROGRAM ELEMENT	6. CATEGORY CODE 211,131,141,610,740, 171,214,218,442,540,	7. PROJECT NUMBER	8. PROJECT COST (\$000) 780	
550,730,219		9. COST ESTIMATES		
Series ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
Primary Facility				665
Wall Insulation, Boards, R8	SF	57428	2.840	(163)
Wall Insulation, Batts, R13	SF	85844	1.498	(129)
Ceiling Insulation, Batts, R19	SF	61753	1.147	(71)
Ceiling Insulation, Batts, R19	SF	52980	1.368	(72)
Door Weather Stripping	LF	14714	2.661	(39)
Window Weather Stripping	LF	125	2.310	(0)
Window Treatment, Double Pane	SF	1376	13.999	(19)
Window Treatment, Storm Window	SF	8903	6.657	(59)
Window Treatment, TSF 80%	SF	34	29.882	(1)
Lighting Modification, inc. to flr.	W	11147	0.904	(10)
Lighting Modification, inc. to HPS	W	35188	0.728	(26)
Warm Air Furnace (WAF) Timer Installation	PC	88	860.511	(76)
Supporting Facilities				0
Subtotal				665
Contingency (10%)				67
Total Contract Cost				732
10. DESCRIPTION OF PROPOSED CONSTRUCTION				
<p>Buildings at Camp Stanley are to be modified to achieve improved energy conservation.</p> <p>Install wall and ceiling insulation to increase R value. Install double pane windows where windows need replacement due to age and deterioration and/or complete visibility is a requirement. Install translucent sandwich fenestration (TSF 80%) where windows need replacement and visibility is not a requirement. Install storm windows where existing windws are in good condition. Install door and window weather stripping in order to decrease infiltration. Replace existing lights with more efficient lighting to reduce electrical consumption. Install timers on warm air furnaces for a 10⁰ setback during unoccupied hours for an approximate 30% savings of the heating energy consumed.</p> <p>Insulation will satisfy criteria in DOD Manual 4270.1-M.</p> <p>No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped.</p> <p>Lists of individual buildings at Camp Stanley which are to receive each modification are attached to this form. Types of construction are indicated on the building lists.</p>				

1. COMPONENT ARMY	FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA	2. DATE 11-19-80
3. INSTALLATION AND LOCATION CAMP STANLEY - KS 284, KOREA		
4. PROJECT TITLE ARCHITECTURAL STRUCTURAL MODIFICATIONS (INCLUDING WARM AIR FURNACES) ECIP		5. PROJECT NUMBER
9. COST ESTIMATES (Continued)		
Supervision, Inspection & Overhead (6.5%)		48
Total Request		780
Installed Equipment - Other Appropriations		(0)
10. DESCRIPTION OF PROPOSED CONSTRUCTION (Continued)		
1. Wall insulation, boards, R8 will be installed in 27 buildings. 2. Wall insulation, batts, R13 will be installed in 51 buildings. 3. Ceiling insulation, batts, R19 will be installed in 23 buildings. 4. Ceiling insulation, batts, R19 will be installed in 49 buildings. 5. Door weather stripping will be installed in 90 buildings. 6. Window weather stripping will be installed in 2 buildings. 7. Window treatment, double pane will be installed in 15 buildings. 8. Window treatment, storm window will be installed in 74 buildings. 9. Window treatment, TSF 80% will be installed in 1 building. 10. Lighting modification, inc. to flr. will be installed in 8 buildings. 11. Lighting modification, inc. to HPS will be installed in 9 buildings. 12. WAF timer will be installed in 84 buildings.		
11. REQUIREMENT: <u>PROJECT:</u> The addition of wall and ceiling insulation, window treatment and weather stripping will reduce winter heat loss and/or summer heat gain, thereby reducing energy consumption, as will replacing existing lights with more efficient lighting. Adding timers on warm air furnaces will also save on the heating energy consumed. <u>REQUIREMENT:</u> This project will result in 20.5 mega BTU annual energy savings per thousand dollar cost (E/C ratio), and a benefit-to-cost ratio (B/C ratio) of 7.0. Total annual energy savings is estimated at 15,963.6 mega BTU. A total dollar savings of \$420,366 per year will result in a simple payback period of 1.9 years. <u>CURRENT SITUATION:</u> This project is required to meet stated goals of energy use reduction. It is submitted as part of the energy conservation investment program (ECIP). Present conditions permit very substantial energy waste. A base-wide energy audit has been performed, documenting the situation for each building involved and detailing specific conservation measures. <u>IMPACT IF NOT PROVIDED:</u> If this project is not effected, energy will continue to be needlessly wasted, contrary to national goals. This project has been reviewed and it has been determined that an EIS, pursuant to PL91-190 is not required.		

1. COMPONENT ARMY		FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA		2. DATE 11-19-80	
3. INSTALLATION AND LOCATION CAMP RED CLOUD - KS 256, KOREA			4. PROJECT TITLE ARCHITECTURAL AND STRUCTURAL MODIFICATIONS (INCLUDING WARM AIR FURNACES)		
5. PROGRAM ELEMENT		6. CATEGORY CODE 211,131,214,740, 171,218,442,550, 610,730 Series		7. PROJECT NUMBER	
				8. PROJECT COST (\$000) 881	

9. COST ESTIMATES

ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
Primary Facility				752
Wall Insulation, Boards, R8	SF	37407	2.840	106
Wall Insulation, Batts, R13	SF	112822	1.498	169
Ceiling Insulation, Batts, R19	SF	82626	1.147	95
Ceiling Insulation, Batts, R19	SF	85404	1.368	117
Door Weather Stripping	LF	11218	2.661	30
Window Weather Stripping	LF	302	2.310	1
Window Treatment, Double Pane	SF	2607	13.999	37
Window Treatment, Storm Window	SF	10709	6.657	71
Window Treatment, TSF 80%	SF	434	29.882	13
Lighting Modification, inc. to flr.	W	5778	0.904	5
Lighting Modification, inc. to HPS	W	9833	0.728	7
Warm Air Furnace (WAF) Timer Installation	PC	118	860.511	102
Supporting Facilities				0
Subtotal				752
Contingency (10%)				75

10. DESCRIPTION OF PROPOSED CONSTRUCTION

Buildings at Camp Red Cloud are to be modified to achieve improved energy conservation.

Install wall and ceiling insulation to increase R value. Install double pane windows where windows need replacement due to age and deterioration and/or complete visibility is a requirement. Install translucent sandwich fenestration (TSF 80%) where windows need replacement and visibility is not a requirement. Install storm windows where existing windows are in good condition. Install door and window weather stripping in order to decrease infiltration. Replace existing lights with more efficient lighting to reduce electrical consumption. Install timers on warm air furnaces for a 10⁰ setback during unoccupied hours for an approximate 30% savings of the heating energy consumed.

Insulation will satisfy criteria in DOD Manual 4270.1-M.

No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped.

Lists of individual buildings at Camp Red Cloud which are to receive each modification are attached to this form. Types of construction are indicated on the building lists.

1. Wall insulation, boards, R8, will be installed in 19 buildings.

1. COMPONENT ARMY	FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA	2. DATE 11-19-80								
3. INSTALLATION AND LOCATION CAMP RED CLOUD - KS 256										
4. PROJECT TITLE ARCHITECTURAL & STRUCTURAL MODIFICATIONS (INCLUDING WARM AIR FURNACES)		5. PROJECT NUMBER								
<p>9. COST ESTIMATES (Continued)</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 80%;">Total Contract Cost</td> <td style="text-align: right; border-top: 1px solid black;">827</td> </tr> <tr> <td>Supervision, Inspection and Overhead (6.5%)</td> <td style="text-align: right; border-top: 1px solid black;">54</td> </tr> <tr> <td>Total Request</td> <td style="text-align: right; border-top: 1px solid black;">881</td> </tr> <tr> <td>Installed Equipment - Other Appropriations</td> <td style="text-align: right;">(0)</td> </tr> </table>			Total Contract Cost	827	Supervision, Inspection and Overhead (6.5%)	54	Total Request	881	Installed Equipment - Other Appropriations	(0)
Total Contract Cost	827									
Supervision, Inspection and Overhead (6.5%)	54									
Total Request	881									
Installed Equipment - Other Appropriations	(0)									
<p>10. DESCRIPTION OF PROPOSED CONSTRUCTION (Continued)</p> <ol style="list-style-type: none"> 2. Wall insulation, batts, R13, will be installed in 59 buildings. 3. Ceiling insulation, batts, R19, will be installed in 29 buildings. 4. Ceiling insulation, batts, R19, will be installed in 55 buildings. 5. Door weather stripping will be installed in 98 buildings. 6. Window weather stripping will be installed in 3 buildings. 7. Window treatment, double pane will be installed in 14 buildings. 8. Window treatment, storm windows will be installed in 77 buildings. 9. Window treatment, TSF 80% will be installed in 2 buildings. 10. Lighting modification, inc. to flr. will be installed in 7 buildings. 11. Lighting modification, inc. to HPS will be installed in 2 buildings. 12. WAF timer installation in 107 buildings. 										
<p>11. REQUIREMENT:</p> <p>PROJECT: The addition of wall and ceiling insulation, window treatment and weather stripping will reduce winter heat loss and/or summer heat gain, thereby reducing energy consumption, as will replacing existing lights with more efficient lighting. Adding timers on warm air furnaces will also save on the heating energy consumed.</p> <p>REQUIREMENT: This project will result in 22.4 mega BTU annual energy savings per thousand dollars cost, (E/C ratio) and a benefit-to-cost ratio (B/C ratio) of 6.5. Total annual energy savings is estimated at 19,705.3 mega BTU. A total dollar savings of \$520,925 per year will result in a simple payback period of 1.7 years.</p> <p>CURRENT SITUATION: This project is required to meet stated goals of energy use reduction. It is submitted as part of the energy conservation investment program (ECIP). Present conditions permit very substantial energy waste. A base-wide energy audit has been performed, documenting the situation for each building involved and detailing specific conservation measures.</p> <p>IMPACT IF NOT PROVIDED: If this project is not effected, energy will continue to be needlessly wasted, contrary to national goals.</p> <p>This project has been reviewed and it has been determined that an EIS, pursuant to PL91-190 is not required.</p>										

1. COMPONENT ARMY	FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA			2. DATE 11-19-80
3. INSTALLATION AND LOCATION CAMP CASEY - KS 124, KOREA		4. PROJECT TITLE ARCHITECTURAL & <input checked="" type="checkbox"/> STRUCTURAL MODIFICATIONS (INCLUDING WARM AIR FURNACES).		
5. PROGRAM ELEMENT	6. CATEGORY CODE 211,131,141,214,452 442,610,171,218 series	7. PROJECT NUMBER	8. PROJECT COST (\$000) 1,216	
9. COST ESTIMATES				
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
<u>Primary Facility</u>				
Wall Insulation, Boards, R=8	SF	54912	2.840	1,038 (156)
Wall Insulation, Batts, R=13	SF	153302	1.498	(230)
Ceiling Insulation, Batts, R=19	SF	80280	1.147	(92)
Ceiling Insulation, Batts, R=19	SF	124757	1.368	(171)
Door Weather Stripping	LF	18827	2.661	(50)
Window Weather Stripping	LF	49	2.310	(0)
Window Treatment, Double Pane	SF	4928	13.999	(69)
Window Treatment, Storm Window	SF	10248	6.657	(68)
Window Treatment, TSF 80%	SF	424	29.882	(13)
Lighting Modification, inc. to flr. R	W	4475	0.904	(4)
Lighting Modification, inc. to HPS.	W	32396	0.728	(24)
Warm Air Furnace (WAF) Timer Installation	PC	188	860.511	(162)
<u>Supporting Facilities</u>				0
Subtotal				1,038
Contingency (10%)				104
Total Contract Cost				1,142
10. DESCRIPTION OF PROPOSED CONSTRUCTION				
<p>Buildings at Camp Casey are to be modified to achieve improved energy conservation.</p> <p>Install wall and ceiling insulation to increase R value. Install double pane windows where windows need replacement due to age and deterioration and/or complete visibility is a requirement. Install translucent sandwich fenestration (TSF 80%) where windows need replacement and visibility is not a requirement. Install storm windows where existing windows are in good condition. Install door and window weather stripping in order to decrease infiltration. Replace existing lights with more efficient lighting to reduce electrical consumption. Install timers on warm air furnaces for a 10° setback during unoccupied hours for an approximate 30% savings of the heating energy consumed.</p> <p>Insulation will satisfy criteria in DOD Manual 4270.1-M.</p> <p>No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped.</p> <p>Lists of individual buildings at Camp Casey which are to receive each modification are attached to this form. Types of construction are indicated on the building lists.</p>				

1. COMPONENT ARMY	FY 19 84 MILITARY CONSTRUCTION PROJECT DATA	2. DATE 11-19-80						
3. INSTALLATION AND LOCATION CAMP CASEY - KS 124								
4. PROJECT TITLE ARCHITECTURAL & STRUCTURAL MODIFICATIONS (INCLUDING WARM AIR FURNACES)		5. PROJECT NUMBER						
<p>9. COST ESTIMATES --(Continued)</p> <table> <tr> <td>Supervision, Inspection & Overhead (6.5%)</td> <td>74</td> </tr> <tr> <td>Total Request</td> <td>1,216</td> </tr> <tr> <td>Installed Equipment - Other Appropriates</td> <td>(0)</td> </tr> </table> <p>10. DESCRIPTION OF PROPOSED CONSTRUCTION (Continued)</p> <ol style="list-style-type: none"> 1. Wall insulation, boards, R8 will be installed in 29 buildings. 2. Wall insulation, batts, R13 will be installed in 113 buildings. 3. Ceiling insulation, batts, R19 will be installed in 31 buildings. 4. Ceiling insulation, batts, R19 will be installed in 113 buildings. 5. Door weather stripping will be installed in 153 buildings. 6. Window weather stripping will be installed in 2 buildings. 7. Window treatment, double pane will be installed in 25 buildings. 8. Window treatment, storm windows will be installed in 123 buildings. 9. Window treatment, TSF 80% will be installed in 1 building. 10. Lighting Modification, Inc. to FLR will be installed in 9 buildings. 11. Lighting Modification, Inc. to HPS will be installed in 8 buildings. 12. WAF timer installation will be installed in 167 buildings. <p>11. REQUIREMENT:</p> <p><u>PROJECT:</u> The addition of wall and ceiling insulation, window treatment and weather stripping will reduce winter heat loss and/or summer heat gain, thereby reducing energy consumption, as will replacing existing lights with more efficient lighting. Adding timers on warm air furnaces will also save on the heating energy consumed.</p> <p><u>REQUIREMENT:</u> This project will result in 19.5 mega BTU annual energy savings per thousand dollars cost, (E/C ratio), and a benefit-to-cost ratio (B/C ratio) of 5.7. Total annual energy savings is estimated at 23,707.5 mega BTU. A total dollar savings of \$628,096 per year will result in a simple payback period of 1.9 years.</p> <p><u>CURRENT SITUATION:</u> This project is required to meet stated goals of energy use reduction. It is submitted as part of the energy conservation investment program (ECIP). Present conditions permit very substantial energy waste. A base-wide energy audit has been performed, documenting the situation for each building involved and detailing specific conservation measures.</p> <p><u>IMPACT IF NOT PROVIDED:</u> If this project is not effected, energy will continue to be needlessly wasted, contrary to national goals.</p>			Supervision, Inspection & Overhead (6.5%)	74	Total Request	1,216	Installed Equipment - Other Appropriates	(0)
Supervision, Inspection & Overhead (6.5%)	74							
Total Request	1,216							
Installed Equipment - Other Appropriates	(0)							

1. COMPONENT ARMY		FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA			2. DATE 11-19-80	
3. INSTALLATION AND LOCATION CAMP CASEY - KS 124			4. PROJECT TITLE ARCHITECTURAL STRUCTURAL MODIFICATIONS (INCLUDING WARM AIR FURNACES)			
5. PROGRAM ELEMENT		6. CATEGORY CODE 740,510,550,730 760,721,540 Series		7. PROJECT NUMBER		8. PROJECT COST (\$000) 1195
9. COST ESTIMATES						
ITEM				U/M	QUANTITY	UNIT COST COST (\$000)
Primary Facility						684
Wall Insulation, Boards, R8				SF	141764	2.840 (403)
Wall Insulation, Batts, R13				SF	88835	1.498 (133)
Ceiling Insulation, Batts, R19				SF	142512	1.147 (163)
Ceiling Insulation, Batts, R19				SF	72965	1.368 (100)
Door Weather Stripping				LF	4985	2.661 (13)
Window Weather Stripping				LF	296	2.310 (1)
Window Treatment, Double Pane				SF	1448	13.999 (20)
Window Treatment, Storm Window				SF	8003	6.657 (53)
Window Treatment, TSF 80%				SF	1762	29.882 (53)
Lighting Modification, inc. to flr.				W	10400	0.904 (9)
Lighting Modification, inc. to HPS.				W	36000	0.728 (26)
Warm Air Furnaces (WAF) Timer Installation				PC	76	860.511 (65)
Supporting Facilities						0.
Subtotal						1039
Contingency (10%)						104
10. DESCRIPTION OF PROPOSED CONSTRUCTION						
<p>Buildings at Camp Casey are to be modified to achieve improved energy conservation.</p> <p>Install wall and ceiling insulation to increase R value. Install double pane windows where windows need replacement due to age and deterioration and/or complete visibility is a requirement. Install translucent sandwich fenestration (TSF 80%) where windows need replacement and visibility is not a requirement. Install storm windows where existing windows are in good condition. Install door and window weather stripping in order to decrease infiltration. Replace existing lights with more efficient lighting to reduce electrical consumption. Install timers on warm air furnaces for a 10⁰ setback during unoccupied hours for an approximate 30% savings of the heating energy consumed.</p> <p>Insulation will satisfy criteria in DOD Manual 4270.1-M.</p> <p>No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped.</p> <p>Lists of individual buildings at Camp Casey which are to receive each modification are attached to this form. Types of construction are indicated on the building lists.</p>						

1. COMPONENT ARMY	FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA	2. DATE 11-19-80								
3. INSTALLATION AND LOCATION CAMP CASEY - KS 124										
4. PROJECT TITLE ARCHITECTURAL STRUCTURAL MODIFICATIONS (INCLUDING WARM AIR FURNACES)		5. PROJECT NUMBER								
<p>9. COST ESTIMATES (Continued)</p> <table> <tr> <td>Total Contract Cost</td> <td>1143</td> </tr> <tr> <td>Supervision, Inspection & Overhead (6.5%)</td> <td>74</td> </tr> <tr> <td>Total Request</td> <td>1195</td> </tr> <tr> <td>Installed Equipment - Other Appropriations</td> <td>(0)</td> </tr> </table>			Total Contract Cost	1143	Supervision, Inspection & Overhead (6.5%)	74	Total Request	1195	Installed Equipment - Other Appropriations	(0)
Total Contract Cost	1143									
Supervision, Inspection & Overhead (6.5%)	74									
Total Request	1195									
Installed Equipment - Other Appropriations	(0)									
<p>10. DESCRIPTION OF PROPOSED CONSTRUCTION (Continued)</p> <ol style="list-style-type: none"> 1. Wall insulation, boards, R8 will be installed in 26 buildings. 2. Wall insulation, batts, R13 will be installed in 41 buildings. 3. Ceiling insulation, batts, R19 will be installed in 21 buildings. 4. Ceiling insulation, batts, R19 will be installed in 33 buildings. 5. Door weather stripping will be installed in 75 buildings. 6. Window weather stripping will be installed in 2 buildings. 7. Window treatment, double pane will be installed in 15 buildings. 8. Window treatment, storm window will be installed in 57 buildings. 9. Window treatment, TSF 80% will be installed in 4 buildings. 10. Lighting modification, inc. to flr. will be installed in 8 buildings. 11. Lighting modification, inc. to HPS will be installed in 1 building. 12. WAF timer will be installed in 61 buildings. 										
<p>11. REQUIREMENT:</p> <p><u>PROJECT:</u> The addition of wall and ceiling insulation, window treatment and weather stripping will reduce winter heat loss and/or summer heat gain, thereby reducing energy consumption, as will replacing existing lights with more efficient lighting. Adding timers on warm air furnaces will also save on the heating energy consumed.</p> <p><u>REQUIREMENT:</u> This project will result in 24.0 mega BTU annual energy savings per thousand dollars cost (E/C ratio), and a benefit-to-cost (B/C ratio) of 9.7. Total annual energy savings is estimated at 28,678.8 mega BTU. A total dollar savings of \$775,308 per year will result in a simple payback period of 1.5 years.</p> <p><u>CURRENT SITUATION:</u> This project is required to meet stated goals of energy use reduction. It is submitted as part of the energy conservation investment program (ECIP). Present conditions permit very substantial energy waste. A base-wide energy audit has been performed, documenting the situation for each building involved and detailing specific conservation measures.</p> <p><u>IMPACT IF NOT PROVIDED:</u> If this project is not effected, energy will continue to be needlessly wasted, contrary to national goals. This project has been reviewed and it has been determined that an EIS, pursuant to PL91-190 is not required.</p>										

1. COMPONENT ARMY	FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA			2. DATE 11-19-80
3. INSTALLATION AND LOCATION CAMP HOVEY - KS 168, KOREA		4. PROJECT TITLE ARCHITECTURAL & STRUCTURAL MODIFICATIONS (INCLUDING WARM AIR FURNACES)		
5. PROGRAM ELEMENT	6. CATEGORY CODE 211,740,610,141, 171,214,218,442,550 Series	7. PROJECT NUMBER	8. PROJECT COST (\$000) 513	
9. COST ESTIMATES				
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
<u>Primary Facility</u>				
Wall insulation, boards, R=8	SF	9152	2.840	438 (26)
Wall insulation, batts, R=13	SF	87789	1.498	(132)
Ceiling insulation, batts, R=19	SF	8997	1.147	(10)
Ceiling insulation, batts, R=19	SF	82824	1.368	(113)
Door weather stripping	LF	6774	2.661	(18)
Window weather stripping	LF	198	2.310	(1)
Window treatment, double pane	SF	1445	13.999	(20)
Window treatment, storm window	SF	5611	6.657	(37)
Window treatment, TSF 80%	SF	38	29.882	(1)
Lighting Modification, Inc. to flr.	W	4799	0.904	(4)
Lighting Modification, Inc. to HPS	W	20768	0.728	(15)
Warm air furnace (WAF) timer installation	PC	70	860.511	(60)
<u>Supporting Facilities</u>				0
Subtotal				438
Contingency (10%)				44
Total Contract Cost				482
10. DESCRIPTION OF PROPOSED CONSTRUCTION				
<p>Buildings at Camp Hovey are to be modified to achieve improved energy conservation.</p> <p>Install wall and ceiling insulation to increase R value. Install double pane windows where windows need replacement due to age and deterioration and/or complete visibility is a requirement. Install translucent sandwich fenestration (TSF 80%) where windows need replacement and visibility is not a requirement. Install storm windows where existing windows are in good condition. Install door and window weather stripping in order to decrease infiltration. Replace existing lights with more efficient lighting to reduce electrical consumption. Install timers on warm air furnaces for a 10⁰ set-back during unoccupied hours for an approximate 30% savings of the heating energy consumed.</p> <p>Insulation will satisfy criteria in DOD Manual 4270.1-M.</p> <p>No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped.</p> <p>Lists of individual buildings at Camp Hovey which are to receive each modification are attached to this form. Types of construction are indicated on the buildings lists.</p>				

1. COMPONENT ARMY	FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA	2. DATE 11-19-80						
3. INSTALLATION AND LOCATION CAMP HOVEY - KS 168								
4. PROJECT TITLE ARCHITECTURAL & STRUCTURAL MODIFICATIONS (INCLUDING WARM AIR FURNACES)		5. PROJECT NUMBER						
<p>9. COST ESTIMATES (Continued)</p> <table> <tr> <td>Supervision, Inspection & Overhead (6.5%)</td> <td>31</td> </tr> <tr> <td>Total Request</td> <td>513</td> </tr> <tr> <td>Installed Equipment - Other Appropriations</td> <td>(0)</td> </tr> </table>			Supervision, Inspection & Overhead (6.5%)	31	Total Request	513	Installed Equipment - Other Appropriations	(0)
Supervision, Inspection & Overhead (6.5%)	31							
Total Request	513							
Installed Equipment - Other Appropriations	(0)							
<p>10. DESCRIPTION OF PROPOSED CONSTRUCTION (Continued)</p> <ol style="list-style-type: none"> 1. Wall insulation, boards, R=8 will be installed in 4 buildings. 2. Wall insulation, batts, R=13 will be installed in 51 buildings. 3. Ceiling insulation, batts, R=19 will be installed in 4 buildings. 4. Ceiling insulation, batts, R=19 will be installed in 49 buildings. 5. Door weather stripping will be installed in 70 buildings. 6. Window weather stripping will be installed in 2 buildings. 7. Window treatment, double pane will be installed in 8 buildings. 8. Window treatment, storm window will be installed in 60 buildings. 9. Window treatment, TSF 80% will be installed in 1 building. 10. Lighting Modification, Inc. to flr. will be installed in 10 buildings. 11. Lighting Modification, Inc. to HPS. will be installed in 5 buildings. 12. WAF timer installation will be installed in 61 buildings. 								
<p>11. REQUIREMENT:</p> <p><u>PROJECT:</u> The addition of wall and ceiling insulation, window treatment and weather stripping will reduce winter heat loss and/or summer heat gain, thereby reducing energy consumption, as will replacing existing lights with more efficient lighting. Adding timers on warm air furnaces will also save on the heating energy consumed.</p> <p><u>REQUIREMENT:</u> This project will result in 17.1 mega BTU annual energy savings per thousand dollars cost, (E/C ratio), and a benefit-to-cost ratio (B/C ratio) of 4.0. Total annual energy savings is estimated at 8,750.5 mega BTU. A total dollar savings of \$226,246 per year will result in a simple payback period of 2.3 years.</p> <p><u>CURRENT SITUATION:</u> This project is required to meet stated goals of energy use reduction. It is submitted as part of the energy conservation investment program (ECIP). Present conditions permit very substantial energy waste. A base-wide energy audit has been performed, documenting the situation for each building involved and detailing specific conservation measures.</p>								

1. COMPONENT ARMY	FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA			2. DATE 11-19-80
3. INSTALLATION AND LOCATION H-220 HELIPORT - KS 971, KOREA		4. PROJECT TITLE ARCHITECTURAL & STRUCTURAL MODIFICATIONS (INCLUDING WARM FURNACE)		
5. PROGRAM ELEMENT	6. CATEGORY CODE 141,171,610,730, 740,211,550, Series	7. PROJECT NUMBER	8. PROJECT COST (\$000) 117	
9. COST ESTIMATES				
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
Primary Facility				100
Wall Insulation, Boards R8	SF	805	2.840	(2)
Wall Insulation, Batts, R13	SF	16992	1.498	(25)
Ceiling Insulation, Batts, R19	SF	19655	1.368	(27)
Door Weather Stripping	LF	2321	2.661	(6)
Window Treatment, Double Pane	SF	951	13.999	(13)
Window Treatment, Storm Window	SF	529	6.657	(4)
Warm Air Furnace (WAF) Timer Installation	PC	26	860.511	(22)
Supporting Facilities				0
Subtotal				100
Contingency (10%)				10
Total Contract Cost				110
Supervision, Inspection & Overhead (6.5%)				7
Total Request				117
Installed Equipment - Other Appropriations				(0)
10. DESCRIPTION OF PROPOSED CONSTRUCTION				
<p>Buildings at H-220 Heliport are to be modified to achieve improved energy conservation.</p> <p>Install wall and ceiling insulation to increase R value. Install double pane windows where windows need replacement due to age and deterioration and/or complete visibility is a requirement. Install storm windows where existing windows are in good condition. Install door weather stripping in order to decrease infiltration. Install timers on warm air furnaces for a 10° setback during unoccupied hours for an approximate 30% savings of the heating energy consumed.</p> <p>Insulation will satisfy criteria in DOD Manual 4270.1-M.</p> <p>No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped.</p> <p>Lists of individual buildings at H-220 Heliport which are to receive each modification are attached to this form. Types of construction are indicated on the building lists.</p> <p>Wall insulation, boards, R8 will be installed in 1 building. Wall insulation, batts, R13 will be installed in 14 buildings. Ceiling insulation, batts, R19 will be installed in 14 buildings. Door weather stripping will be installed in 16 buildings.</p>				

1. COMPONENT ARMY		FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA			2. DATE 11-19-80	
3. INSTALLATION AND LOCATION CAMP HOWZE - KS 176, KOREA				4. PROJECT TITLE ARCHITECTURAL STRUCTURAL MODIFICATIONS (INCLUDING WARM AIR FURNACES)		
5. PROGRAM ELEMENT		6. CATEGORY CODE 131,141,211,740,171, 214,610,550		7. PROJECT NUMBER		8. PROJECT COST (\$000) 368
9. COST ESTIMATES						
ITEM				U/M	QUANTITY	UNIT COST COST (\$000)
Primary Facility						314
Wall Insulation, Boards, R8				SF	26836	2.840 (76)
Wall Insulation, Batts, R13				SF	40041	1.498 (60)
Ceiling Insulation, Batts, R19				SF	30189	1.147 (35)
Ceiling Insulation, Batts, R19				SF	26336	1.368 (36)
Door Weather Stripping				LF	3544	2.661 (9)
Window Weather Stripping				LF	365	2.310 (1)
Window Treatment, Double Pane				SF	1704	13.999 (24)
Window Treatment, Storm Window				SF	3490	6.657 (23)
Lighting Modification, inc. to flr.				W	17048	0.904 (15)
Warm Air Furnace (WAF) Timer				PC	40	860.511 (34)
Supporting Facilities						0
Subtotal						314
Contingency (10%)						31
Total Contract Cost						345
Supervision, Inspection & Overhead (6.5%)						23
Total Request						368
Installed Equipment - Other Appropriations						(0)

10. DESCRIPTION OF PROPOSED CONSTRUCTION

Buildings at Camp Howze are to be modified to achieve improved energy conservation.

Install wall and ceiling insulation to increase R value. Install double pane windows where windows need replacement due to age and deterioration and/or complete visibility is a requirement. Install storm windows where existing windows are in good condition. Install door and window weather stripping in order to decrease infiltration. Replace existing lights with more efficient lighting to reduce electrical consumption. Install timers on warm air furnaces for a 10° setback during unoccupied hours for an approximate 30% savings of the heating energy consumed.

Insulation will satisfy criteria in DOD Manual 4270.1-M.

No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped.

Lists of individual buildings at Camp Howze which are to receive each modification are attached to this form. Types of construction are indicated on the building lists.

1. Wall insulation boards, R8, will be installed in 15 buildings.
2. Wall insulation batts, R13, will be installed in 27 buildings.
3. Ceiling insulation batts, R19, will be installed in 14 buildings.

1. COMPONENT ARMY		FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA			2. DATE 11-19-80	
3. INSTALLATION AND LOCATION CAMP EDWARDS - KS 032, KOREA			4. PROJECT TITLE ARCHITECTURAL & STRUCTURAL MODIFICATIONS (INCLUDING WARM AIR FURNACES)			
5. PROGRAM ELEMENT		6. CATEGORY CODE 211,442,740,141,214, 550, Series		7. PROJECT NUMBER		8. PROJECT COST (\$000) 321
9. COST ESTIMATES						
ITEM				U/M	QUANTITY	UNIT COST COST (\$000)
Primary Facility						274
Wall Insulation, Boards, R8				SF	11356	2.840 (32)
Wall Insulation, Batts, R13				SF	18140	1.498 (27)
Ceiling Insulation, Batts, R19				SF	58986	1.147 (68)
Ceiling Insulation, Batts, R19				SF	20006	1.368 (27)
Door Weather Stripping				LF	9516	2.661 (25)
Window Treatment, Double Pane				SF	327	13.999 (5)
Window Treatment, Storm Window				SF	1350	6.657 (9)
Lighting Modification, inc. to flr.				W	7550	0.904 (7)
Lighting Modification, inc. to HPS				W	89523	0.728 (65)
Warm Air Furnace (WAF) Timer Installation				PC	10	860.511 (9)
Supporting Facilities						0
Subtotal						274
Contingency (10%)						27
Total Contract Cost						301
Supervision, Inspection & Overhead (6.5%)						20
Total Request						321
Installed Equipment - Other Appropriations						(0)
10. DESCRIPTION OF PROPOSED CONSTRUCTION						
<p>Buildings at Camp Edwards are to be modified to achieve improved energy conservation.</p> <p>Install wall and ceiling insulation to increase R value. Install double pane windows where windows need replacement due to age and deterioration and/or complete visibility is a requirement. Install storm windows where existing windows are in good condition. Install door weather stripping in order to decrease infiltration. Replace existing lights with more efficient lighting to reduce electrical consumption. Install timers on warm air furnaces for a 10⁰ setback during unoccupied hours for an approximate 30% savings of the heating energy consumed.</p> <p>Insulation will satisfy criteria in DOD Manual 4270.1-M.</p> <p>No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped.</p> <p>Lists of individual buildings at Camp Edwards which are to receive each modification are attached to this form. Types of construction are indicated on the building lists.</p> <ol style="list-style-type: none"> 1. Wall insulation, boards, R8, will be installed in 7 buildings. 2. Wall insulation, batts, R13, will be installed in 10 buildings. 3. Ceiling insulation, batts, R19, will be installed in 7 buildings. 						

1. COMPONENT ARMY	FY 19 84 MILITARY CONSTRUCTION PROJECT DATA			2. DATE 11-19-80
3. INSTALLATION AND LOCATION CAMP PELHAM - KS 252, KOREA		4. PROJECT TITLE ARCHITECTURAL & STRUCTURAL MODIFICATIONS (INCLUDING WARM AIR FURNACES)		
5. PROGRAM ELEMENT	6. CATEGORY CODE 211, 131, 740, 141, 214, 218, 442, 550 610 Series	7. PROJECT NUMBER	8. PROJECT COST (\$000) 361	
9. COST ESTIMATES				
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
Primary Facility				308
Wall Insulation, Boards, R8	SF	24156	2.840	69
Wall Insulation, Batts, R13	SF	39645	1.498	59
Ceiling Insulation, Batts, R19	SF	20926	1.147	24
Ceiling Insulation, Batts, R19	SF	38138	1.368	52
Floor/Basement Insulation, Batts, R13	SF	3511	0.926	3
Door Weather Stripping	LF	4746	2.661	13
Window Weather Stripping	LF	29	2.310	0
Window Treatment, Double Pane	SF	2608	13.999	37
Window Treatment, Storm Window	SF	1915	6.657	13
Lighting Modification, inc. to flr.	W	6582	0.904	6
Lighting Modification, inc. to HPS.	W	4892	0.728	4
Warm Air Furnace (WAF) Timer Installation	PC	34	860.511	30
Supporting Facilities				0
Subtotal				308
Contingency (10%)				31
Total Contract Cost				339
10. DESCRIPTION OF PROPOSED CONSTRUCTION				
<p>Buildings at Camp Pelham are to be modified to achieve improved energy conservation.</p> <p>Install wall, ceiling and floor/basement insulation to increase R value. Install double pane windows where windows need replacement due to age and deterioration and/or complete visibility is a requirement. Install storm windows where existing windows are in good condition. Install door and window weather stripping in order to decrease infiltration. Replace existing lights with more efficient lighting to reduce electrical consumption. Install timers on warm air furnaces for a 10° setback during unoccupied hours for an approximate 30% savings of the heating energy consumed.</p> <p>Insulation will satisfy criteria in DOD Manual 4270.1-M.</p> <p>No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped.</p> <p>Lists of individual buildings at Camp Pelham which are to receive each modification are attached to this form. Types of construction are indicated on the building lists.</p> <ol style="list-style-type: none"> 1. Wall insulation, boards, R8, will be installed in 11 buildings. 2. Wall insulation, batts, R13, will be installed in 23 buildings. 3. Ceiling insulation, batts, R19, will be installed in 7 buildings. 				

1. COMPONENT ARMY	FY 19 84 MILITARY CONSTRUCTION PROJECT DATA	2. DATE 11-19-80
3. INSTALLATION AND LOCATION CAMP PELHAM - KS 252		
4. PROJECT TITLE ARCHITECTURAL & STRUCTURAL MODIFICATIONS (INCLUDING WARM AIR FURNACES)		5. PROJECT NUMBER
9. COST ESTIMATES (Continued) Supervision, Inspection and Overhead (6.5%) 22 Total Request 361 Installed Equipment - Other Appropriations (0)		
10. DESCRIPTION OF PROPOSED CONSTRUCTION (Continued) 4. Ceiling insulation, batts, R19, will be installed in 22 buildings. 5. Floor/basement insulation, batts, R13, will be installed in 1 building. 6. Door weather stripping will be installed in 38 buildings. 7. Window weather stripping will be installed in 1 building. 8. Window treatment, double pane, will be installed in 12 buildings. 9. Window treatment, storm window, will be installed in 23 buildings. 10. Lighting modification, inc. to flr. will be installed in 3 buildings. 11. Lighting modification, inc. to HPS, will be installed in 3 buildings. 12. WAF timer installation will be installed in 33 buildings.		
11. REQUIREMENTS: <u>PROJECT:</u> The addition of wall, ceiling and floor/basement insulation, window treatment and weather stripping will reduce winter heat loss and/or summer heat gain, thereby reducing energy consumption, as will replacing existing lights with more efficient lighting. Adding timers on warm air furnaces will also save on the heating energy consumed. <u>REQUIREMENT:</u> This project will result in 21.5 mega BTU annual energy savings per thousand dollars cost, (E/C ratio), and a benefit-to-cost ratio (B/C ratio) of 7.7. Total annual energy savings is estimated at 7,769.2 mega BTU. A total dollar savings of \$198,135 per year will result in a simple payback period of 1.8 years. <u>CURRENT SITUATION:</u> This project is required to meet stated goals of energy use reduction. It is submitted as part of the energy conservation investment program (ECIP). Present conditions permit very substantial energy waste. A base-wide energy audit has been performed, documenting the situation for each building involved and detailing specific conservation measures. <u>IMPACT IF NOT PROVIDED:</u> If this project is not effected, energy will continue to be needlessly wasted, contrary to national goals. This project has been reviewed and it has been determined that an EIS, pursuant to PL91-190 is not required.		

1. COMPONENT ARMY	FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA			2. DATE 11-19-80
3. INSTALLATION AND LOCATION SWISS SWEDE CAMP - KS 994, KOREA		4. PROJECT TITLE ARCHITECTURAL & STRUCTURAL MODIFICATIONS (INCLUDING WARM AIR FURNACES)		
5. PROGRAM ELEMENT	6. CATEGORY CODE 610, 141, 740 Series	7. PROJECT NUMBER	8. PROJECT COST (\$000) 19	
9. COST ESTIMATES				
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
<u>Primary Facility</u>				
Wall Insulation, Batts, R=13	SF	3580	1.498	16 (5)
Ceiling Insulation, Batts, R=19	SF	1041	1.368	(1)
Door Weather Stripping	LF	249	2.661	(1)
Window Treatment, Double Pane	SF	417	13.999	(6)
Window Treatment, Storm Window	SF	140	6.657	(1)
Warm Air Furnace (WAF) Timer Installation	PC	2	860.511	(2)
<u>Supporting Facilities</u>				0
Subtotal				16
Contingency (10%)				2
Total Contract Cost				18
Supervision, Inspection & Overhead (6.5%)				1
Total Request				19
Installed Equipment - Other Appropriations				(0)
10. DESCRIPTION OF PROPOSED CONSTRUCTION				
<p>Buildings at Swiss Swede Camp are to be modified to achieve improved energy conservation.</p> <p>Install wall and ceiling insulation to increase R value. Install double pane windows where windows need replacement due to age and deterioration and/or complete visibility is a requirement. Install storm windows where existing windows are in good condition. Install door weather stripping in order to decrease infiltration. Install timers on warm air furnaces for a 100 setback during unoccupied hours for an approximate 30% savings of the heating energy consumed.</p> <p>Insulation will satisfy criteria in DOD Manual 4270.1-M.</p> <p>No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped.</p> <p>Lists of individual buildings at Swiss Swede Camp which are to receive each modification are attached to this form. Types of construction are indicated on the building lists.</p> <ol style="list-style-type: none"> 1. Wall insulation, batts, R=13 will be installed in two buildings. 2. Ceiling insulation, batts, R=19 will be installed in one building. 				

1. COMPONENT ARMY		FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA		2. DATE 11-19-80	
3. INSTALLATION AND LOCATION CAMP KITTYHAWK - KS 540, KOREA			4. PROJECT TITLE ARCHITECTURAL Equip MODIFICATIONS (INCLUDING WARM AIR FURNACES)		
5. PROGRAM ELEMENT	6. CATEGORY CODE 740,141,218,442, 730,550,610, Series	7. PROJECT NUMBER	8. PROJECT COST (\$000) 97		

9. COST ESTIMATES

ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
Primary Facility				83
Wall insulation, boards, R8	SF	6546	2.840	(19)
Wall insulation, batts, R13	SF	11644	1.498	(17)
Ceiling insulation, batts, R19	SF	3833	1.147	(4)
Ceiling insulation, batts, R19	SF	12855	1.368	(18)
Door weather stripping	LF	840	2.661	(2)
Window treatment, double pane	SF	77	13.999	(1)
Window treatment, storm window	SF	1337	6.657	(9)
Lighting modification, inc. to flr.	W	73	.904	(0)
Warm Air Furnace (WAF) timer installation	PC	15	860.511	(13)
Supporting Facilities				0
Subtotal				83
Contingency (10%)				8
Total Contract Cost				91
Supervision, Inspection & Overhead (6.5%)				6
Total Request				97
Installed Equipment - Other Appropriations				(0)

10. DESCRIPTION OF PROPOSED CONSTRUCTION

Buildings at Camp Kittyhawk are to be modified to achieve improved energy conservation.

Install wall and ceiling insulation to increase R value. Install double pane windows where windows need replacement due to age and deterioration and/or complete visibility is a requirement. Install storm windows where existing windows are in good condition. Install door weather stripping in order to decrease infiltration. Replace existing lights with more efficient lighting to reduce electrical consumption. Install timers on warm air furnaces for a 10⁰ setback during unoccupied hours for an approximate 30% savings of the heating energy consumed.

Insulation will satisfy criteria in DOD Manual 4270.1-M.

No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped.

Lists of individual buildings at Camp Kittyhawk which are to receive each modification are attached to this form. Types of construction are indicated on the building lists.

1. Wall insulation, boards, R8 will be installed in 6 buildings.
2. Wall insulation, batts, R13 will be installed in 10 buildings.
3. Ceiling insulation, batts, R19 will be installed in 3 buildings.
4. Ceiling insulation, batts, R19 will be installed in 10 buildings.

FOR OFFICIAL USE ONLY (WHEN DATA IS ENTERED)

1. DATE 11-13-80	2. FISCAL YEAR 1983	3. DEPARTMENT ARMY		4. INSTALLATION CAMP HUMPHREYS - KS 792
5. PROPOSED AUTHORIZATION \$ 1,502,000		6. PRIOR AUTHORIZATION P.L.		7. CATEGORY CODE NUMBER 610, 24, 44, 41, 40, 13, 44, 171, 442, 218, 219
10. PROPOSED APPROPRIATION \$ 1,502,000		11. BUDGET ACCOUNT NUMBER 6100		12. PROJECT NUMBER
13. PROJECT TITLE ARCHITECTURAL & STRUCTURAL MODIFICATIONS				
14. TYPE OF CONSTRUCTION				
a. PERMANENT	X			
b. SEMI-PERMANENT	X			
c. TEMPORARY	X			
15. TYPE OF WORK				
a. NEW FACILITY				
b. ADDITION	X			
c. ALTERATION				
d. CONVERSION				
e. OTHER (Specify)				
16. REPLACEMENT				
17. TYPE OF DESIGN				
a. STANDARD DESIGN	X			
b. SPECIAL DESIGN				
c. DRAWING NO.				
18. DESCRIPTION OF WORK TO BE DONE				
1. Wall insulation, boards, R8 in 48 buildings. 2. Wall insulation, batts, R13 in 95 buildings. 3. Ceiling insulation, batts, R19 in 28 buildings. 4. Ceiling ins. for Quonsethuts, batts, R19 in 95 bldgs. 5. Weather stripping for doors in 175 buildings. 6. Weather stripping for windows in 2 buildings. 7. Double pane windows in 140 buildings. 8. Storm windows in 28 buildings. 9. Translucent sandwich fenestration, (80%) in 7 bldgs. 10. Lighting modification, inc. to flr. in 27 buildings. 11. Lighting modification, inc. to HPS in 15 buildings.				
19. PHYSICAL CHARACTERISTICS OF PRIMARY FACILITY				
a. NO. OF BLDGS	188	b. SEE ATTACHED LIST	c. WIDTH	NA
d. DESIGN CAPACITY	NA	e. GROSS AREA	f. NA	NA
g. COOLING	NA	h. CAP.	i. NA	NA
20. PRIMARY FACILITY				
21. SUPPORTING FACILITIES				
22. TOTAL PROJECT COST				

23. QUANTITATIVE DATA	
U/M	NA
a. TOTAL REQUIREMENT	()
b. EXISTING SUBSTANDARD	()
c. EXISTING ADEQUATE	
d. FUNDED, NOT IN INVENTORY	
e. ADEQUATE ASSETS (C + d)	
f. UNFUNDED PRIOR AUTHORIZATION	
g. INCLUDED IN FY PROGRAM	
h. DEFICIENCY (a - e - f - g)	NA
24. RELATED PROJECTS	

This project is required to meet stated goals of energy use reduction. It is submitted as part of the energy conservation investment program (ECIP). The addition of wall and ceiling insulation, window treatment, weather stripping, and lighting modifications will reduce winter heat loss and/or summer heat gain, thereby reducing energy consumption. This project will result in 21.4 mega BTU annual energy savings per thousand dollars cost, (E/C ratio), and a benefit-to-cost ratio (B/C ratio) of 7.4. Total annual energy savings is estimated at 32,188.1 mega BTU. A total dollar savings of \$695,468 per year will result in a simple payback period of 2.2 years. If this project is not effected, energy will continue to be needlessly wasted, contrary to national goals. This project has been reviewed and it has been determined that an EIS, pursuant to PL91-190 is not required.

FOR OFFICIAL USE ONLY (WHEN DATA IS ENTERED)

1. DATE 11-13-80		2. FISCAL YEAR 1983		3. DEPARTMENT ARMY		4. INSTALLATION CAMP HUMPHREYS - KS 792	
5. PROPOSED AUTHORIZATION \$ 314,000		6. PRIOR AUTHORIZATION P.L.		7. CATEGORY CODE NUMBER 530, 740, 730		9. STATE/COUNTRY KOREA	
10. PROPOSED APPROPRIATION \$ 314,000		11. BUDGET ACCOUNT NUMBER 6100		12. PROJECT NUMBER		13. PROJECT TITLE ARCHITECTURAL & STRUCTURAL MODIFICATIONS	
SECTION A - DESCRIPTION OF PROJECT				SECTION B - COST ESTIMATES			
14. TYPE OF CONSTRUCTION		15. PHYSICAL CHARACTERISTICS OF PRIMARY FACILITY		20. PRIMARY FACILITY		22. TOTAL PROJECT COST	
a. PERMANENT	X	1. NO. OF BLDGS. 50		A. WALL INSULATION, BOARDS, R8		UNIT COST	
b. SEMI-PERMANENT		2. SEE ATTACHED LIST		B. WALL INSULATION, BATTIS, R13		COST (\$000)	
c. TEMPORARY		3. DESIGN CAPACITY NA		C. CEILING INSULATION, BATTIS, R19		\$ 314	
15. TYPE OF WORK		4. COOLING NA		D. CEILING INSULATION, BATTIS, R19		QUANTITY	
a. NEW FACILITY		5. CAP. NA		E. DOOR WEATHER STRIPPING		U/M	
b. ADDITION		6. COST (\$ NA		F. WINDOW WEATHER STRIPPING		\$ 2,894	
c. ALTERATION		7. NA		G. WINDOW TREATMENT, DOUBLE PANE		15390	
d. CONVERSION		8. NA		H. WINDOW TREATMENT, STORM WINDOW		53559	
e. OTHER (SPECIFY)		9. NA		I. WINDOW TREATMENT, TSF 80%		1,525	
16. REPLACEMENT		10. NA		J. LIGHTING MOD., INC. TO FLR		1,169	
17. TYPE OF DESIGN		11. NA		K. LIGHTING MOD., INC. TO HPS		1,393	
a. STANDARD DESIGN X		12. NA		21. SUPPORTING FACILITIES		2,711	
b. SPECIAL DESIGN		13. NA				461	
c. DRAWING NO.		14. NA				1823	
18. DESCRIPTION OF WORK TO BE DONE						14,262	
Work will consist of the following modifications:						6,782	
1. Wall insulation, boards, R8 in 6 buildings.						91	
2. Wall insulation, batts, R13 in 32 buildings.						41684	
3. Ceiling insulation, batts, R19 in 5 buildings.						.742	
4. Ceiling ins. for Quonset huts, batts, R19 in 25 buildings.							
5. Weather stripping for doors in 40 buildings.							
6. Weather stripping for windows in 2 buildings.							
7. Double pane windows in 10 buildings.							
8. Storm windows in 28 buildings.							
9. Translucent sandwich fenestration (80%) in 2 bldgs.							
10. Lighting modification, inc. to FLR in 17 buildings.							
11. Lighting modification, inc. to HPS in 1 buildings.							

23. QUANTITATIVE DATA		25. REQUIREMENT FOR PROJECT	
U/M NA)		This project is required to meet stated goals of energy use reduction. It is submitted as part of the energy conservation investment program (ECIP). The addition of wall and ceiling insulation, window treatment, weather stripping, and lighting modifications will reduce winter heat loss and/or summer heat gain, thereby reducing energy consumption. This project will result in 24.2 mega BTU annual energy savings per thousand dollars cost, (E/C ratio), and a benefit-to-cost ratio (B/C ratio) of 6.1. Total annual energy savings is estimated at 7,610.5 mega BTU. A total dollar savings of \$158,969 per year will result in a simple payback period of 2.0 years. If this project is not effected, energy will continue to be needlessly wasted, contrary to national goals. This project has been reviewed and it has been determined that an EIS, pursuant to PL91-190 is not required.	
a. TOTAL REQUIREMENT			
b. EXISTING SUBSTANDARD			
c. EXISTING ADEQUATE			
d. FUNDED, NOT IN INVENTORY			
e. ADEQUATE ASSETS (c + d)			
f. UNFUNDED PRIOR AUTHORIZATION			
g. INCLUDED IN FY PROGRAM			
h. DEFICIENCY (a - e - f - g)			
24. RELATED PROJECTS		NA	

1. COMPONENT ARMY		FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA		2. DATE 11-19-80	
3. INSTALLATION AND LOCATION CAMP LONG - KS 208, KOREA			4. PROJECT TITLE ARCHITECTURAL & STRUCTURAL MODIFICATIONS (INCLUDING WARM AIR FURNACES)		
5. PROGRAM ELEMENT		6. CATEGORY CODE 211, 131, 740, 141, 214 218, 442, 550, 610, 730 219 Series		7. PROJECT NUMBER	
				8. PROJECT COST (\$000) 279	
9. COST ESTIMATES					
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)	
<u>Primary Facility</u>					
Wall Insulation, Boards, R8	SF	8482	2.840	238	
Wall Insulation, Batts, R13	SF	42045	1.498	(24)	
Ceiling Insulation, Batts, R19	SF	19563	1.147	(63)	
Ceiling Insulation, Batts, R19	SF	41488	1.368	(22)	
Door Weather Stripping	LF	7442	2.661	(57)	
Window Weather Stripping	LF	28	2.310	(20)	
Window Treatment, Double Pane	SF	95	13.999	(0)	
Window Treatment, Storm Window	SF	4002	6.657	(1)	
Window Treatment, TSF (80%)	SF	40	29.882	(27)	
Lighting Modification, inc. to Flr.	W	865	0.904	(1)	
Lighting Modification, inc. to HPS	W	7442	0.728	(5)	
Warm Air Furnace (WAF) Timer Installation	PC	19	860.511	(16)	
				0	
<u>Supporting Facilities</u>					
Subtotal				238	
Contingency (10%)				24	
10. DESCRIPTION OF PROPOSED CONSTRUCTION					
Buildings at Camp Long are to be modified to achieve improved energy conservation.					
<p>Install wall and ceiling insulation to increase R value. Install double pane windows where windows need replacement due to age and deterioration and/or complete visibility is a requirement. Install translucent sandwich fenestration (TSF 80%) where windows need replacement and visibility is not a requirement. Install storm windows where existing windows are in good condition. Install door and window weather stripping in order to decrease infiltration. Replace existing lights with more efficient lighting to reduce electrical consumption. Install timers on warm air furnaces for a 10⁰ setback during unoccupied hours for an approximate 30% savings of the heating energy consumed.</p> <p>Insulation will satisfy criteria in DOD Manual 4270.1-M.</p> <p>No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped.</p> <p>Lists of individual buildings at Camp Long which are to receive each modification are attached to this form. Types of construction are indicated on the building lists.</p> <ol style="list-style-type: none"> 1. Wall insulation, boards, R8, will be installed in 6 buildings. 2. Wall insulation, batts, R13, will be installed in 20 buildings. 					

1. COMPONENT ARMY		FY 19 84 MILITARY CONSTRUCTION PROJECT DATA		2. DATE 11-19-80									
3. INSTALLATION AND LOCATION CAMP LONG - KS 208 , KOREA													
4. PROJECT TITLE ARCHITECTURAL & STRUCTURAL MODIFICATIONS (INCLUDING WARM AIR FURNACES)				5. PROJECT NUMBER									
<p>9. COST ESTIMATES (Continued)</p> <table> <tr> <td>Total Contract Cost</td> <td>262</td> </tr> <tr> <td>Supervision, Inspection & Overhead (6.5%)</td> <td>17</td> </tr> <tr> <td>Total Request</td> <td>279</td> </tr> <tr> <td>Installed Equipment - Other Appropriations</td> <td>(0)</td> </tr> </table>						Total Contract Cost	262	Supervision, Inspection & Overhead (6.5%)	17	Total Request	279	Installed Equipment - Other Appropriations	(0)
Total Contract Cost	262												
Supervision, Inspection & Overhead (6.5%)	17												
Total Request	279												
Installed Equipment - Other Appropriations	(0)												
<p>10. DESCRIPTION OF PROPOSED CONSTRUCTION (Continued)</p> <ol style="list-style-type: none"> Ceiling insulation, batts, R19 will be installed in 7 buildings. Ceiling insulation, batts, R19 will be installed in 18 buildings. Door weather stripping will be installed in 34 buildings. Window weather stripping will be installed in 1 building. Window treatment, double pane will be installed in 1 building. Window treatment, storm window will be installed in 33 buildings. Window treatment, TSF 80% will be installed in 1 building. Lighting modification, inc.to flr.will be installed in 4 buildings. Lighting modification, inc.to HPS will be installed in 5 buildings. WAF timer will be installed in 14 buildings. 													
<p>11. REQUIREMENT:</p> <p>PROJECT: The addition of wall and ceiling insulation, window treatment and weather stripping will reduce winter heat loss and/or summer heat gain, thereby reducing energy consumption, as will replacing existing lights with more efficient lighting. Adding timers on warm air furnaces will also save on the heating energy consumed.</p> <p>REQUIREMENT: This project will result in 18.5 mega BTU annual energy savings per thousand dollars cost, (E/C ratio), and benefit-to-cost ratio (B/C ratio) of 6.4. Total annual energy savings is estimated at 5,157.0 mega BTU. A total dollar savings of \$136,385 per year will result in a simple payback period of 2.0 years.</p> <p>CURRENT SITUATION: This project is required to meet stated goals of energy use reduction. It is submitted as part of the energy conservation investment program (ECIP). Present conditions permit very substantial energy waste. A base-wide energy audit has been performed, documenting the situation for each building involved and detailing specific conservation measures.</p> <p>IMPACT IF NOT PROVIDED: If this project is not effected, energy will continue to be needlessly wasted, contrary to national goals. This project has been reviewed and it has been determined that an EIS, pursuant to PL91-190 is not required.</p>													

FOR OFFICIAL USE ONLY (WHEN DATA IS ENTERED)

1. DATE 11-13-80		2. FISCAL YEAR 1983		3. DEPARTMENT ARMY		4. INSTALLATION CAMP CARROLL - KS 116	
5. PROPOSED AUTHORIZATION \$ 1,042,000		6. PRIOR AUTHORIZATION P.L.		7. CATEGORY CODE NUMBER 211, 214, 215, 217		9. STATE/COUNTRY KOREA	
10. PROPOSED APPROPRIATION \$ 1,042,000		11. BUDGET ACCOUNT NUMBER 6100		12. PROJECT NUMBER		13. PROJECT TITLE ARCHITECTURAL MODIFICATIONS	

SECTION A - DESCRIPTION OF PROJECT				SECTION B - COST ESTIMATES					
14. TYPE OF CONSTRUCTION				20. PRIMARY FACILITY					
15. TYPE OF WORK				21. SUPPORTING FACILITIES					
a. PERMANENT	X	b. NO. OF BLDGS.	26	A. WALL INSULATION, BOARDS R8				UNIT COST	COST (\$000)
b. SEMI-PERMANENT	X	c. DESIGN CAPACITY	NA	B. WALL INSULATION, BATTS, R13				2.893	211
c. TEMPORARY	X	d. COOLING	NA	C. CEILING INSULATION, BATTS, R19				1.525	45
16. REPLACEMENT				D. CEILING INSULATION, BATTS, R19				1.169	183
17. TYPE OF DESIGN				E. DOOR WEATHER STRIPPING				1.393	21
a. STANDARD DESIGN	X	19. DESCRIPTION OF WORK TO BE DONE		F. WINDOW WEATHER STRIPPING				2.711	34
b. SPECIAL DESIGN		Work will consist of the following modifications:		G. WINDOW TREATMENT, DOUBLE PANE				2.352	1
c. DRAWING NO.		1. Wall insulation, boards, R8 in 10 buildings.		H. WINDOW TREATMENT, STORM WINDOW				14.259	33
		2. Wall insulation, batts, R13 in 6 buildings.		I. LIGHTING MOD., INC. TO FLR.				6.781	172
		3. Ceiling insulation, batts, R19 in 13 buildings.		J. LIGHTING MOD., INC. TO HPS.				.921	42
		4. Ceiling ins. for Quonsethuts, batts, R19 in 6 bldgs.		K. LOWER CEILINGS				3.739	142
		5. Weather stripping for doors in 23 buildings.		L. LOWER CRANE				153.000	153
		6. Weather stripping for windows in 2 buildings.							
		7. Double pane windows in 2 buildings.							
		8. Storm windows in 17 buildings.							
		9. Lighting modification, inc. to flr. in 14 buildings.							
		10. Lighting modification, inc. to HPS in 2 buildings.							
		11. Lower ceilings in 3 buildings.							
		12. Lower crane in 1 building.							
22. TOTAL PROJECT COST									\$ 1042

23. QUANTITATIVE DATA		25. REQUIREMENT FOR PROJECT	
a. TOTAL REQUIREMENT	(U/M NA)		
b. EXISTING SUBSTANDARD	()		
c. EXISTING ADEQUATE			
d. FUNDED, NOT IN INVENTORY			
e. ADEQUATE ASSETS (c + d)			
f. UNFUNDED PRIOR AUTHORIZATION			
g. INCLUDED IN FY PROGRAM			
h. DEFICIENCY (e - f - g)			
24. RELATED PROJECTS	NA		

This project is required to meet stated goals of energy use reduction. It is submitted as part of the energy conservation investment program (ECIP). The addition of wall and ceiling insulation, window treatment, weather stripping, and lighting modifications will reduce winter heat loss and/or summer heat gain, thereby reducing energy consumption. This project will result in 17.8 mega BTU annual energy savings per thousand dollars cost, (E/C ratio), and a benefit-to-cost ratio (B/C ratio) of 8.2. Total annual energy savings is estimated at 18,531.6 mega BTU. A total dollar savings of \$408,209 per year will result in a simple payback period of 2.6 years. If this project is not effected, energy will continue to be needlessly wasted, contrary to national goals. This project has been reviewed and it has been determined that an EIS, pursuant to PL91-190 is not required.

FOR OFFICIAL USE ONLY (WHEN DATA IS ENTERED)

1. DATE 11-13-80	2. FISCAL YEAR 1983	3. DEPARTMENT ARMY				4. INSTALLATION CAMP CARROLL - KS 116					
5. PROPOSED AUTHORIZATION \$ 195,000		6. PRIOR AUTHORIZATION P.L.		7. CATEGORY CODE NUMBER 550, 740, 730	8. PROGRAM ELEMENT NUMBER						
10. PROPOSED APPROPRIATION \$ 195,000		11. BUDGET ACCOUNT NUMBER 6100		12. PROJECT NUMBER		13. PROJECT TITLE ARCHITECTURAL & STRUCTURAL MODIFICATIONS					
SECTION A - DESCRIPTION OF PROJECT						SECTION B - COST ESTIMATES					
14. TYPE OF CONSTRUCTION		18. PHYSICAL CHARACTERISTICS OF PRIMARY FACILITY				20. PRIMARY FACILITY		UNIT COST		COST (\$000)	
a. PERMANENT		a. NO. OF FLOORS. 23	SEE ATTACHED LIST	4. WIDTH NA		A. WALL INSULATION, BOARDS, R8	U/M	QUANTITY	\$	\$	195
b. SEMI-PERMANENT	X	a. DESIGN CAPACITY NA		6. GROSS AREA NA		B. WALL INSULATION, BATTS, R13	SF	23508	((68
c. TEMPORARY	X	a. COOLING NA	CAP. NA	COST (\$ NA		C. CEILING INSULATION, BATTS, R19	SF	25589	((39
15. TYPE OF WORK		19. DESCRIPTION OF WORK TO BE DONE				D. CEILING INSULATION, BATTS, R19	SF	13369	((16
a. NEW FACILITY		Work will consist of the following modifications:				E. DOOR WEATHER STRIPPING	LF	17096	((24
b. ADDITION		1. Wall insulation, boards, R8 in 10 buildings.				F. WINDOW WEATHER STRIPPING	LF	2992	((8
c. ALTERATION	X	2. Wall insulation, batts, R13 in 6 buildings.				G. WINDOW TREATMENT, DOUBLE PANE	SF	20	((0
d. CONVERSION		3. Ceiling insulation, batts, R19 in 4 buildings.				H. WINDOW TREATMENT, STORM WINDOW	SF	506	((7
e. OTHER (Specify)		4. Ceiling insulation for Quonset huts, batts, R19 in 4 buildings.				I. WINDOW TREATMENT, TSF 80%	SF	4049	((27
15. REPLACEMENT		5. Weather stripping for doors in 23 buildings.				J. WINDOW TREATMENT, TSF 80%	SF	40	((1
17. TYPE OF DESIGN		6. Weather stripping for windows in 1 building.				K. LIGHTING MOD., INC TO FLR	W	5292	((5
a. STANDARD DESIGN	X	7. Double pane windows in 3 buildings.				21. SUPPORTING FACILITIES					
b. SPECIAL DESIGN		8. Storm windows in 16 buildings.									
c. DRAWING NO.		9. Translucent sandwich fenestration (80%) in 1 building.									
		10. Lighting mod., inc. to flr. in 10 buildings.									
22. TOTAL PROJECT COST						\$ 195					

2. REQUIREMENT FOR PROJECT

QUANTITATIVE DATA					
	(U/M	NA)		
23.	a. TOTAL REQUIREMENT				
	b. EXISTING SUBSTANDARD		(
	c. EXISTING ADEQUATE				
	d. FUNDED, NOT IN INVENTORY				
	e. ADEQUATE ASSETS (c + d)			AUTHORIZED	FUNDED
	f. UNFUNDED PRIOR AUTHORIZATION				
	g. INCLUDED IN FY _____ PROGRAM				
	h. DEFICIENCY (# - g - f - g)				
	24. RELATED PROJECTS		NA		

This project is required to meet stated goals of energy use reduction. It is submitted as part of the energy conservation investment program (ECIP). The addition of wall and ceiling insulation, window treatment, weather stripping and lighting modifications will reduce winter heat loss and/or summer heat gain, thereby reducing energy consumption. This project will result in 18.2 mega BTU annual energy savings per thousand dollars (E/C ratio), and a benefit-to-cost ratio (B/C ratio) of 7.0. Total annual energy savings is estimated at 3,555.2 mega BTU. A total dollar savings of \$76,132 per year will result in a simple payback period of 2.6 years. If this project is not effected, energy will continue to be needlessly wasted, contrary to national goals. This project has been reviewed and it has been determined that an EIS, pursuant to PL91-190 is not required.

FOR OFFICIAL USE ONLY (WHEN DATA IS ENTERED)

1. DATE 11-13-80		2. FISCAL YEAR 1983		3. DEPARTMENT ARMY		4. INSTALLATION CAMP CARROLL - KS 116	
5. PROPOSED AUTHORIZATION \$ 789,000				6. PRIOR AUTHORIZATION P.L.			
10. PROPOSED APPROPRIATION \$ 789,000				11. BUDGET ACCOUNT NUMBER 6100			
7. CATEGORY CODE NUMBER 131, 141, 224, 441, 442, 610, 171				8. PROGRAM ELEMENT NUMBER			
9. STATE/COUNTRY KOREA				13. PROJECT TITLE ARCHITECTURAL & ESTIMATORIAL MODIFICATIONS			
12. PROJECT NUMBER				20. PRIMARY FACILITY			
14. TYPE OF CONSTRUCTION				SECTION B - COST ESTIMATES			
a. PERMANENT				U/M			
b. SEMI-PERMANENT				QUANTITY			
c. TEMPORARY				UNIT COST			
15. TYPE OF WORK				COST (\$000)			
a. NEW FACILITY				A. WALL INSULATION, BOARDS, R8			
b. ADDITION				B. WALL INSULATION, BATTS, R13			
c. ALTERATION				C. CEILING INSULATION, BATTS, R19			
d. CONVERSION				D. CEILING INSULATION, BATTS, R19			
e. OTHER (Specify)				E. DOOR WEATHER STRIPPING			
16. REPLACEMENT				F. WINDOW WEATHER STRIPPING			
17. TYPE OF DESIGN				G. WINDOW TREATMENT, STORM WINDOW			
a. STANDARD DESIGN				H. LIGHTING MOD. INC. TO FLR.			
b. SPECIAL DESIGN				21. SUPPORTING FACILITIES			
c. DRAWING NO.				22. TOTAL PROJECT COST			

23. QUANTITATIVE DATA		25. REQUIREMENT FOR PROJECT	
U/M NA		This project is required to meet stated goals of energy use reduction. It is submitted as part of the energy conservation investment program (ECIP). The addition of wall and ceiling insulation, window treatment, weather stripping and lighting modifications will reduce winter heat loss and/or summer heat gain, thereby reducing energy consumption. This project will result in 19.2 mega BTU annual energy savings per thousand dollars cost, (E/C ratio); and a benefit-to-cost ratio (B/C ratio) of 9.0. Total annual energy savings is estimated at 15,182.1 mega BTU. A total dollar savings of \$337,003 per year will result in a simple payback period of 2.3 years. If this project is not effected, energy will continue to be needlessly wasted, contrary to national goals. This project has been reviewed and it has been determined that an EIS, pursuant to PL91-190 is not required.	
a. TOTAL REQUIREMENT		FUNDING	
b. EXISTING SUBSTANDARD		AUTHORIZED	
c. EXISTING ADEQUATE		FUNDED	
d. FUNDED, NOT IN INVENTORY		UNFUNDED PRIOR AUTHORIZATION	
e. ADEQUATE ASSETS (c + d)		INCLUDED IN FY PROGRAM	
f. UNFUNDED PRIOR AUTHORIZATION		DEFICIENCY (a - b - c - d - e)	
g. INCLUDED IN FY PROGRAM		24. RELATED PROJECTS	
h. DEFICIENCY (a - b - c - d - e)		NA	


FOR OFFICIAL USE ONLY (WHEN DATA IS ENTERED)

1. DATE 11-13-80		2. FISCAL YEAR 1983		3. DEPARTMENT ARMY		4. INSTALLATION CAMP HENRY - KS 160	
5. PROPOSED AUTHORIZATION \$ 792,000				6. PRIOR AUTHORIZATION P.L.			
10. PROPOSED APPROPRIATION \$ 792,000				11. BUDGET ACCOUNT NUMBER 6100			
7. CATEGORY CODE NUMBER 211, 141, 214, 610, 740, 131, 171, 219				8. PROGRAM ELEMENT NUMBER			
9. STATE/COUNTRY KOREA				13. PROJECT TITLE ARCHITECTURAL & STRUCTURAL MODIFICATIONS			
SECTION A - DESCRIPTION OF PROJECT							
14. TYPE OF CONSTRUCTION		16. PHYSICAL CHARACTERISTICS OF PRIMARY FACILITY					
a. PERMANENT	X	b. NO. OF BLDGS. 58		c. SEE ATTACHED LIST		d. WIDTH NA	
b. SEMIPERMANENT	X	e. DESIGN CAPACITY NA		f. GROSS AREA NA		g. COST (\$ NA	
c. TEMPORARY	X	h. COOLING NA		i. CAP. NA		j. NA	
15. TYPE OF WORK		19. DESCRIPTION OF WORK TO BE DONE					
a. NEW FACILITY		Work will consist of the following modifications:					
b. ADDITION		1. Wall insulation, boards, R8 in 12 buildings.					
c. ALTERATION	X	2. Wall insulation, batts, R13 in 28 buildings.					
d. CONVERSION		3. Ceiling insulation, batts, R19 in 14 buildings.					
e. OTHER (Specify)		4. Ceiling ins. for Quonsethuts, batts, R19 in 27 bldgs.					
16. REPLACEMENT		5. Floor/basement insulation, batts, R13 in 4 buildings.					
17. TYPE OF DESIGN		6. Weather stripping for doors in 55 buildings.					
a. STANDARD DESIGN	X	7. Weather stripping for windows in 10 buildings.					
b. SPECIAL DESIGN		8. Double pane windows in 31 buildings.					
c. DRAWING NO.		9. Storm windows in 1 bldg.					
		10. Translucent sandwich fenestration (80%) in 1 bldg.					
		11. Lighting modification, inc. to flr. in 12 buildings.					
SECTION B - COST ESTIMATES							
20. PRIMARY FACILITY		U/M		QUANTITY		UNIT COST	
A. WALL INSULATION, BOARDS, R8		SF		70145		\$ 2.894	
B. WALL INSULATION, BATTs, R13		SF		72342		\$ 1.525	
C. CEILING INSULATION, BATTs, R19		SF		86468		\$ 1.169	
D. CEILING INSULATION, BATTs, R19		SF		88191		\$ 1.393	
E. FLOOR/BASEMENT INS., BATTs, R13		SF		78600		\$ 0.943	
F. DOOR WEATHER STRIPPING		LF		8862		\$ 2.711	
G. WINDOW WEATHER STRIPPING		LF		1392		\$ 2.352	
H. WINDOW TREATMENT, DOUBLE PANE		SF		2323		\$ 14.261	
I. WINDOW TREATMENT, STORM WINDOW		SF		14362		\$ 6.782	
J. WINDOW TREATMENT, TSE 80%		SF		290		\$ 30.441	
K. LIGHTING MOD., INC TO FLR		W		10490		\$ 0.921	
L. LIGHTING MOD., INC TO HPS		W		6097		\$ 0.742	
21. SUPPORTING FACILITIES							
22. TOTAL PROJECT COST						\$ 792	

SECTION C - BASIS OF REQUIREMENT

23. QUANTITATIVE DATA		U/M		NA	
a. TOTAL REQUIREMENT					
b. EXISTING SUBSTANDARD					
c. EXISTING ADEQUATE					
d. FUNDED, NOT IN INVENTORY					
e. ADEQUATE ASSETS (c + d)					
f. UNFUNDED PRIOR AUTHORIZATION					
g. INCLUDED IN FY					
h. DEFICIENCY (a - b - f - g)					
24. RELATED PROJECTS					

This project is required to meet stated goals of energy use reduction. It is submitted as part of the energy conservation investment program (ECIP). The addition of wall and ceiling insulation, floor/basement insulation, window treatment, weather stripping and lighting modifications will reduce winter heat loss and/or summer heat gain, thereby reducing energy consumption. This project will result in 20.4 mega BTU annual energy savings per thousand dollars cost (E/C ratio), and a benefit-to-cost ratio (B/C ratio) of 7.6. Total annual energy savings is estimated at 16,127.3 mega BTU. A total dollar savings of \$355,254 per year will result in a simple payback period of 2.2 years. If this project is not effected, energy will continue to be needlessly wasted, contrary to national goals. This project has been reviewed and it has been determined that an EIS, pursuant to PL91-190 is not required.

1. DATE 11-13-80		2. FISCAL YEAR 1982		3. DEPARTMENT ARMY				4. INSTALLATION CAMP WALKER - FH - KS 300			
5. PROPOSED AUTHORIZATION \$ 47,000		6. PRIOR AUTHORIZATION P.L.		7. CATEGORY CODE NUMBER 711		8. PROGRAM ELEMENT NUMBER		9. STATE/COUNTRY KOREA			
10. PROPOSED APPROPRIATION \$ 47,000		11. BUDGET ACCOUNT NUMBER 6100		12. PROJECT NUMBER		13. PROJECT TITLE ARCHITECTURAL  CENTRAL MODIFICATIONS					

SECTION A - DESCRIPTION OF PROJECT						SECTION B - COST ESTIMATES			
14. TYPE OF CONSTRUCTION		15. PHYSICAL CHARACTERISTICS OF PRIMARY FACILITY				20. PRIMARY FACILITY		UNIT COST	COST (\$000)
a. PERMANENT	b. SEMI-PERMANENT	c. TEMPORARY	d. NO. OF BLDGS.	e. DESIGN CAPACITY	f. GROSS AREA	g. WIDTH	h. NA	U/M	QUANTITY
X			49	SEE ATTACHED LIST	NA	NA	NA	SF	7062
								LF	7643
								SF	934
19. DESCRIPTION OF WORK TO BE DONE Work will consist of the following modifications: 1. Wall insulation, boards, R8 in 6 dwelling units. 2. Weather stripping for doors in 96 dwelling units. 3. Double pane windows in 2 dwelling units.									
15. TYPE OF WORK									
a. NEW FACILITY									
b. ADDITION									
c. ALTERATION X									
d. CONVERSION									
e. OTHER (Specify)									
16. REPLACEMENT									
17. TYPE OF DESIGN									
a. STANDARD DESIGN X									
b. SPECIAL DESIGN									
c. DRAWING NO.									
22. TOTAL PROJECT COST									

SECTION C - BASIS OF REQUIREMENT	
23. REQUIREMENT FOR PROJECT	
23.	QUANTITATIVE DATA (U/M NA)
a. TOTAL REQUIREMENT	()
b. EXISTING SUBSTANDARD	
c. EXISTING ADEQUATE	
d. FUNDED, NOT IN INVENTORY	
e. ADEQUATE ASSETS (c + d)	
f. UNFUNDED PRIOR AUTHORIZATION	
g. INCLUDED IN FY PROGRAM	
h. DEFICIENCY (a - e - f - g)	
24. RELATED PROJECTS	NA

This project is required to meet stated goals of energy use reduction. It is submitted as part of the energy conservation investment program (ECIP). The addition of wall insulation, window treatment and weather stripping will reduce winter heat loss and/or summer heat gain, thereby reducing energy consumption. This project will result in 20.5 mega BTU annual energy savings per thousand dollars cost (E/C ratio), and a benefit-to-cost ratio (B/C ratio) of 5.9. Total annual energy savings is estimated at 972.1 mega BTU. A total dollar savings of \$17,533 per year will result in a simple payback period of 2.7 years. If this project is not effected, energy will continue to be needlessly wasted, contrary to national goals. This project has been reviewed and it has been determined that an EIS, pursuant to PL91-190 is not required.

1. DATE	2. FISCAL YEAR	3. DEPARTMENT				4. INSTALLATION
11-13-80.	1983	ARMY				CAMP WALKER - KS 300
5. PROPOSED AUTHORIZATION	6. PRIOR AUTHORIZATION		7. CATEGORY CODE NUMBER	8. PROGRAM ELEMENT NUMBER	9. STATE/COUNTRY	
\$ 382,000	P.L.	211,610,740,131,141, 214,219,550,730,442			KOREA	
10. PROPOSED APPROPRIATION	11. BUDGET ACCOUNT NUMBER		12. PROJECT NUMBER			
\$ 382,000	6100					
SECTION A - DESCRIPTION OF PROJECT						
14. TYPE OF CONSTRUCTION						
a. PERMANENT	18. PHYSICAL CHARACTERISTICS OF PRIMARY FACILITY					
b. SEMI-PERMANENT	a. NO. OF BLDGS. 45 SEE ATTACHED LIST					
c. TEMPORARY	b. DESIGN CAPACITY NA					
d. TEMPORARY	c. COOLING NA					
15. TYPE OF WORK						
a. NEW FACILITY	d. GROSS AREA NA					
b. ADDITION	e. CAP. NA					
c. ALTERATION	f. COST (\$ NA					
d. CONVERSION	g. COST (\$ NA					
16. OTHER (SPECIFY)						
Work will consist of the following modifications:						
1. Wall insulation, boards, R8 in 30 buildings.						
2. Wall insulation, batts, R13 in 7 buildings.						
3. Ceiling insulation, batts, R19 in 16 buildings.						
4. Ceiling ins. for Quonset huts, batts, R19 in 7 bldgs.						
5. Weather stripping for doors in 43 buildings.						
6. Weather stripping for windows in 8 buildings.						
7. Double pane windows in 4 buildings.						
8. Storm windows in 28 buildings.						
9. Lighting modification, inc. to flr. in 4 buildings.						
10. Lighting modification, inc. to HPS in 1 building.						
17. REPLACEMENT						
a. STANDARD DESIGN						
b. SPECIAL DESIGN						
c. DRAWING NO.						
20. PRIMARY FACILITY						
a. WALL INSULATION, BOARDS, R=8 SF						
b. WALL INSULATION, BATTs, R=13 SF						
c. CEILING INSULATION, BATTs, R=19 SF						
d. CEILING INSULATION, BATTs, R=19 SF						
e. DOOR WEATHER STRIPPING LF						
f. WINDOW WEATHER STRIPPING LF						
g. WINDOW TREATMENT, DOUBLE PANE SF						
h. WINDOW TREATMENT, STORM WINDOW SF						
i. LIGHTING MOD., INC. TO FLR W						
j. LIGHTING MOD., INC. TO HPS W						
21. SUPPORTING FACILITIES						
22. TOTAL PROJECT COST						
\$ 382,000						

23. REQUIREMENT FOR PROJECT

This project is required to meet stated goals of energy use reduction. It is submitted as part of the energy conservation investment program (ECIP). The addition of wall and ceiling insulation, window treatment and weather stripping will reduce winter heat loss and/or summer heat gain, thereby reducing energy consumption. This project will result in 20.7 mega BTU annual energy savings per thousand dollars cost, (E/C ratio), and a benefit-to-cost ratio (B/C ratio) of 8.6. Total annual energy savings is estimated at 7,927.4 mega BTU. A total dollar savings of \$172,737 per year will result in a simple payback period of 2.2 years. If this project is not effected, energy will continue to be needlessly wasted, contrary to national goals. This project has been reviewed and it has been determined that an EIS, pursuant to PL91-190 is not required.

1. COMPONENT ARMY	FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA			2. DATE 11-19-80
3. INSTALLATION AND LOCATION HIALEAH FH - KS 456, KOREA			4. PROJECT TITLE ARCHITECTURAL STRUCTURAL MODIFICATIONS (INCLUDING DOMESTIC HOT WATER HEATERS)	
5. PROGRAM ELEMENT	6. CATEGORY CODE 711 Series	7. PROJECT NUMBER	8. PROJECT COST (\$000) 343	
9. COST ESTIMATES				
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
Primary Facility				293
Wall Insulation, Boards, R8	SF	19395	2.840	(55)
Ceiling Insulation, Batts, R19	SF	12063	1.147	(14)
Door Weather Stripping	LF	2202	2.661	(6)
Window Treatment, Storm Window	SF	15236	6.657	(101)
Hot Water (H.W.) Heater Replacement (US)	PC	50	2342.597	(117)
Supporting Facilities				0
Subtotal				293
Contingency (10%)				29
Total Contract Cost				322
Supervision, Inspection & Overhead (6.5%)				21
Total Request				343
Installed Equipment - Other Appropriations				(0)
10. DESCRIPTION OF PROPOSED CONSTRUCTION				
<p>Buildings at Hialeah-FH are to be modified to achieve improved energy conservation.</p> <p>Install wall and ceiling insulation to increase R value. Install storm windows where existing windows are in good condition. Install door weather stripping in order to decrease infiltration. Replace hot water heaters to reduce energy consumption.</p> <p>Insulation will satisfy criteria in DOD Manual 4270.1-M.</p> <p>No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped.</p> <p>Lists of individual buildings at Hialeah-FH which are to receive each modification are attached to this form. Types of construction are indicated on the building lists.</p> <p>Wall insulation boards, R8, will be installed in 18 dwelling units. Ceiling insulation batts, R19, will be installed in 16 dwelling units. Door weather stripping will be installed in 68 dwelling units. Window treatment storm window will be installed in 68 dwelling units. H. W. heater replacement (US) will be installed in 50 dwelling units.</p>				

1. COMPONENT ARMY		FY 19 ⁸⁴ MILITARY CONSTRUCTION PROJECT DATA		2. DATE 11-19-80	
3. INSTALLATION AND LOCATION HIALEAH - KS 456, KOREA			4. PROJECT TITLE ARCHITECTURAL & STRUCTURAL MODIFICATION (INCLUDING WARM AIR FURNACE)		
5. PROGRAM ELEMENT		6. CATEGORY CODE 211,131,214,740, 218,442,510,610,730		7. PROJECT NUMBER	
				8. PROJECT COST (\$000) 572	
Series 9. COST ESTIMATES					
ITEM		U/M	QUANTITY	UNIT COST	COST (\$000)
Primary Facility					488
Wall Insulation, Boards, R8		SF	58989	2.840	(168)
Wall Insulation, Batts, R13		SF	32996	1.498	(49)
Ceiling Insulation, Batts, R19		SF	86357	1.147	(99)
Ceiling Insulation, Batts, R19		SF	23504	1.368	(32)
Door Weather Stripping		LF	8524	2.661	(23)
Window Weather Stripping		LF	1762	2.310	(4)
Window Treatment, Double Pane		SF	781	13.999	(11)
Window Treatment, Storm Window		SF	6531	6.657	(44)
Lighting Modification, inc. to flr.		W	7643	0.904	(7)
Lighting Modification, inc. to HPS		W	7442	0.728	(5)
Warm Air Furnace (WAF) Timer Installation		PC	54	860.511	(47)
Supporting Facilities					0
Subtotal					488
Contingency (10%)					49
Total Contract Cost					537
Supervision, Inspection and Overhead (6.5%)					35
Total Request					572
10. DESCRIPTION OF PROPOSED CONSTRUCTION					
<p>Buildings at Hialeah are to be modified to achieve improved energy conservation.</p> <p>Install wall and ceiling insulation to increase R value. Install double pane windows where windows need replacement due to age and deterioration and/or complete visibility is a requirement. Install storm windows where existing windows are in good condition. Install door and window weather stripping in order to decrease infiltration. Replace existing lights with more efficient lighting to reduce electrical consumption. Install timers on warm air furnaces for a 10° setback during unoccupied hours for an approximate 30% savings of the heating energy consumed.</p> <p>Insulation will satisfy criteria in DOD Manual 4270.1-M.</p> <p>No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped.</p> <p>Lists of individual buildings at Hialeah which are to receive each modification are attached to this form. Types of construction are indicated on the building lists.</p> <ol style="list-style-type: none"> 1. Wall insulation, boards, R=8 will be installed in 16 buildings. 2. Wall insulation, batts, R=13 will be installed in 20 buildings. 					

1. COMPONENT ARMY	FY 19 84 MILITARY CONSTRUCTION PROJECT DATA			2. DATE 11-19-80
3. INSTALLATION AND LOCATION YONGSAN GARRISON - KS 948 ,KOREA		4. PROJECT TITLE MODIFICATION FOR INSTALLATION OF CLOCK THERMOSTAT W/ OUTSIDE AIR THERMOSTAT OVERRIDE		
5. PROGRAM ELEMENT	6. CATEGORY CODE 131,141,171,214,217,218, 219,510,530,540,550,610, 730,740,841,842 Series	7. PROJECT NUMBER	8. PROJECT COST (\$000) 173	
9. COST ESTIMATES				
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
Primary Facility				147
Clock Thermostat with Outside Air Thermostat Override	EA	171	861.40	(147)
Supporting Facilities				0
Subtotal				147
Contingency (10%)				15
Total Contract Cost				162
Supervision, Inspection & Overhead (6.5%)				11
Total Request				173
Installed Equipment - Other Appropriations				(0)
10. DESCRIPTION OF PROPOSED CONSTRUCTION Buildings at Yongsan Garrison are to be modified to achieve improved energy conservation. Install 7-day time clock with set back feature, spring back-up (in case of power failure) and outdoor air thermostat override to reduce energy consumption on all warm-air furnaces. Insulation will satisfy criteria in DOD Manual 4270.1-M. No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped. Lists of individual buildings at Yongsan Garrison which are to receive each modification are attached to this form. Types of construction are indicated on the building lists. Clock thermostats with outside air thermostat override will be installed in 148 buildings.				

1. COMPONENT ARMY	FY 19 ⁸⁴ MILITARY CONSTRUCTION PROJECT DATA			2. DATE 11-19-80
3. INSTALLATION AND LOCATION YONGSAN GARRISON - KS 948, KOREA		4. PROJECT TITLE MODIFICATION FOR DISHWASHER HEAT RECOVERY ECIP		
5. PROGRAM ELEMENT	6. CATEGORY CODE 72210	7. PROJECT NUMBER	8. PROJECT COST (\$000) 19	
9. COST ESTIMATES				
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
Primary Facility	EA	2	8130	16
Dishwasher Waste Heat Recovery System, 1000-Man Mess				(16)
Supporting Facilities				0
Subtotal				16
Contingency (10%)				2
Total Contract Cost				18
Supervision, Inspection and Overhead (6.5%)				1
Total Request				19
Installed Equipment - Other Appropriations				(0)
10. DESCRIPTION OF PROPOSED CONSTRUCTION				
<p>Buildings at Yongsan Garrison are to be modified to achieve improved energy conservation.</p> <p>Installation of this system, which includes a cleanable heat exchanger, dishwater strainer and pump, potable water pump, associated piping, valves, insulation and controls will recover heat from the dishwasher which would be rejected into the sewer. The recovered heat will be returned to the domestic hot water boiler, thus reducing oil consumption.</p> <p>Insulation will satisfy criteria in DOD Manual 4270.1-M.</p> <p>No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped.</p> <p>Lists of individual buildings at Yongsan Garrison which are to receive each modification are attached to this form. Types of construction are indicated on the building lists.</p> <p>Dishwasher waste heat recovery systems will be installed in 2 buildings.</p>				

1. COMPONENT ARMY	FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA			2. DATE 11-19-80	
3. INSTALLATION AND LOCATION YONGSAN GARRISON - KS 948, KOREA			4. PROJECT TITLE MODIFICATION FOR COMMISSARY WASTE HEAT RECOVERY EOP		
5. PROGRAM ELEMENT	6. CATEGORY CODE 74021	7. PROJECT NUMBER	8. PROJECT COST (\$000) 52		
9. COST ESTIMATES					
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)	
Primary Facility	EA	1	44,860	45	
Heat Transfer Coil and Associated Refrigerant Lines and Controls				(45)	
Supporting Facilities				0	
Subtotal				45	
Contingency (10%)				4	
Total Contract Cost				49	
Supervision, Inspection And Overhead (6.5%)				3	
Total Request				52	
Installed Equipment - Other Appropriations				(0)	
10. DESCRIPTION OF PROPOSED CONSTRUCTION					
<p>Buildings at Yongsan Garrison are to be modified to achieve improved energy conservation.</p> <p>Install a heat transfer coil in the existing York air handler and connect to the nine R502 refrigerant compressors in the commissary building S7003. This project also includes the necessary controls and modifications to the existing facility.</p> <p>Insulation will satisfy criteria in DOD Manual 4270.1-M.</p> <p>No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped.</p> <p>Lists of individual buildings at Yongsan Garrison which are to receive each modification are attached to this form. Types of construction are indicated on the building lists.</p> <p>Heat transfer coil and associated refrigerant lines and controls will be installed in 1 building.</p>					
11. REQUIREMENT:					
PROJECT: Installation of a heat recovery coil will save energy by utilizing the					

1. COMPONENT ARMY		FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA		2. DATE 11-19-80	
3. INSTALLATION AND LOCATION YONGSAN GARRISON - KS 948, KOREA			4. PROJECT TITLE MODIFICATION FOR CHILLER REPLACEMENT		
5. PROGRAM ELEMENT	6. CATEGORY CODE 89045	7. PROJECT NUMBER	8. PROJECT COST (\$000) 382		

9. COST ESTIMATES

ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
Primary Facility				326
Centrifugal Chiller, 400 ton	EA	1	325,500	(326)
Supporting Facilities				0
Subtotal				326
Contingency (10%)				33
Total Contract Cost				359
Supervision, Inspection & Overhead (6.5%)				23
Total Request				382
Installed Equipment - Other Appropriations				(0)

10. DESCRIPTION OF PROPOSED CONSTRUCTION

Buildings at Yongsan Garrison are to be modified to achieve improved energy conservation.

Installation of a 400-ton centrifugal chiller to replace the existing lithium bromide absorption chiller. This will result in an increase in electrical consumption, but a decrease in fuel oil consumption for a net reduction in source energy and operating costs. The supporting boilers are to be abandoned in place as possible back up for the heating system. (Refer to Boiler Modifications at Yongsan Garrison - KS 948, FY83)

Insulation will satisfy criteria in DOD Manual 4270.1-M.

No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped.

Lists of individual buildings at Yongsan Garrison which are to receive each modification are attached to this form. Types of construction are indicated on the building lists.

A 400-ton centrifugal chiller will be installed in one building.

1. COMPONENT ARMY	FY 1984 MILITARY CONSTRUCTION PROJECT DATA			2. DATE 11-19-80
3. INSTALLATION AND LOCATION YONGSAN GARRISON (FH) - KS 948, KOREA		4. PROJECT TITLE MODIFICATION FOR DOMESTIC HOT WATER HEATER REPLACEMENT		
5. PROGRAM ELEMENT	6. CATEGORY CODE 711 Series	7. PROJECT NUMBER	8. PROJECT COST (\$000) 668	
9. COST ESTIMATES				
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
Primary Facility	EA	243	2343.9	570
Oil Fired Water Heaters and Associated Trim				(570)
Supporting Facilities				0
Subtotal				570
Contingency (10%)				57
Total Contract Cost				627
Supervision, Inspection And Overhead (6.5%)				41
Total Request				668
Installed Equipment - Other Appropriations				(0)
10. DESCRIPTION OF PROPOSED CONSTRUCTION Buildings at Yongsan Garrison are to be modified to achieve improved energy conservation. Installation of oil fired water heaters and associated trim to replace electric water heaters, thereby reducing electrical consumption. Insulation will satisfy criteria in DOD Manual 4270.1-M. No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped. Lists of individual buildings at Yongsan Garrison which are to receive each modification are attached to this form. Types of construction are indicated on the building lists. Oil fired water heaters and associated trim will be installed in 238 dwelling units.				
11. REQUIREMENT: <u>PROJECT:</u> The addition of oil fired water heaters and associated trim to replace electric water heaters will reduce electrical consumption.				

1. COMPONENT ARMY	FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA			2. DATE 11-19-80
3. INSTALLATION AND LOCATION YONGSAN GARRISON - KS 948, KOREA		4. PROJECT TITLE MODIFICATION FOR ENERGY MONITOR & CONTROL SYSTEM		
5. PROGRAM ELEMENT	6. CATEGORY CODE 740, 510, 610, 620 821 SERIES	7. PROJECT NUMBER	8. PROJECT COST (\$000) 1,691	
9. COST ESTIMATES				
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
Primary Facility	EA	1	1,444	1,444
Energy Monitor and Control System				(1,444)
Supporting Facilities				0
Subtotal				1,444
Contingency (10%)				144
Total Contract Cost				1,588
Supervision, Inspection and Overhead (6.5%)				103
Total Request				1,691
Installed Equipment - Other Appropriations				(0)
10. DESCRIPTION OF PROPOSED CONSTRUCTION <p>Buildings at Yongsan Garrison are to be modified to achieve improved energy conservation.</p> <p>Install Energy Monitor and Control System (EMCS) to control and minimize energy consumption. Useful management data will be reported to reduce manual requirements and report malfunctions as well as minimizing energy consumption during building non-use hours.</p> <p>Insulation will satisfy criteria in DOD Manual 4270.1-M.</p> <p>No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped.</p> <p>Lists of individual buildings at Yongsan Garrison which are to receive each modification are attached to this form. Types of construction are indicated on the building lists.</p> <p>A computer controlled Energy Monitor and Control System will be installed in 39 buildings.</p>				

1. COMPONENT ARMY	FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA			2. DATE 11-19-80
3. INSTALLATION AND LOCATION K-16 AIRFIELD - KS 508, KOREA		4. PROJECT TITLE MODIFICATION FOR INSTALLATION OF <u>CLOCK</u> THERMOSTAT W/ OUTSIDE AIR THERMOSTAT OVERRIDE		
5. PROGRAM ELEMENT	6. CATEGORY CODE 740,141,131,730, 219,214,550 Series	7. PROJECT NUMBER	8. PROJECT COST (\$000) 8	
9. COST ESTIMATES				
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
Primary Facility				6
Clock Thermostats with Outside Air Thermostat Override	EA	7	861.40	(6)
Supporting Facilities				0
Subtotal				6
Contingency (10%)				1
Total Contract Cost				7
Supervision, Inspection & Overhead (6.5%)				1
Total Request				8
Installed Equipment - Other Appropriations				(0)
10. DESCRIPTION OF PROPOSED CONSTRUCTION Buildings at K-16 Airfield are to be modified to achieve improved energy conservation. Install 7-daytime clock with setback feature, spring back-up (in case of power failure) and outdoor air thermostat override to reduce energy consumption on all warm-air furnaces. Insulation will satisfy criteria in DOD Manual 4270.1-M. No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped. Lists of individual buildings at K-16 Airfield which are to receive each modification are attached to this form. Types of construction are indicated on the buildings lists. Clock thermostat with outside thermostat override will be installed in 7 buildings.				

1. COMPONENT ARMY	FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA			2. DATE 11-19-80
3. INSTALLATION AND LOCATION CAMP HUMPHREYS - KS 792, KOREA		4. PROJECT TITLE INSTALLATION OF CLOCK THERMOSTAT WITH OUTSIDE AIR THERMOSTAT OVERRIDE MODIFICATION		
5. PROGRAM ELEMENT	6. CATEGORY CODE 740,214,131,219,218,610, 217,141,310,211,212,133 Series	7. PROJECT NUMBER	8. PROJECT COST (\$000) 94	
9. COST ESTIMATES				
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
Primary Facility -				80
Clock Thermostat With Outside				
Air Thermostat Override	EA	93	861.40	(80)
Supporting Facilities				0
Subtotal				80
Contingency (10%)				8
Total Contract Cost				88
Supervision, Inspection & Overhead (6.5%)				6
Total Request				94
Installed Equipment - Other Appropriations				(0)
10. DESCRIPTION OF PROPOSED CONSTRUCTION Buildings at Camp Humphreys are to be modified to achieve improved energy conservation. Install 7-day time clock with setback feature, spring back-up (in case of power failure) and outdoor air thermostat override to reduced energy consumption. Insulation will satisfy criteria in DOD Manual 4270.1-M. No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped. Lists of individual buildings at Camp Humphreys which are to receive each modification are attached to this form. Types of construction are indicated on the building lists. Clock thermostats with outside air thermostat override will be installed in 88 buildings on all warm-air furnaces.				
11. REQUIREMENT: <u>PROJECT:</u> The addition of 7-day time clocks with setback feature, spring back-up (in case of power failure) and outdoor air thermostat override to reduce energy consumption. <u>REQUIREMENT:</u> This project will result in 50.8 mega BTU annual energy savings per thousand dollars cost, (E/C ratio), and a benefit-to-cost ratio (B/C				

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1. DATE 11-19-80	2. FISCAL YEAR 1983	3. DEPARTMENT ARMY		4. INSTALLATION CAMP HUMPHREYS - KS 792	
5. PROPOSED AUTHORIZATION \$ 125,000		6. PRIOR AUTHORIZATION P.L. NONE		7. CATEGORY CODE NUMBER 722 and 821	
10. PROPOSED APPROPRIATION \$ 125,000		11. BUDGET ACCOUNT NUMBER 6100		12. PROJECT NUMBER	
13. PROJECT TITLE BOILER MODIFICATIONS					
14. TYPE OF CONSTRUCTION					
15. TYPE OF WORK					
16. REPLACEMENT					
17. TYPE OF DESIGN					
18. STANDARD DESIGN					
19. SPECIAL DESIGN					
20. DRAWING NO.					
21. DESCRIPTION OF WORK TO BE DONE					
22. TOTAL PROJECT COST					

23. QUANTITATIVE DATA		24. REQUIREMENT FOR PROJECT	
25. REQUIREMENT FOR PROJECT		26. REQUIREMENT FOR PROJECT	
27. REQUIREMENT FOR PROJECT		28. REQUIREMENT FOR PROJECT	
29. REQUIREMENT FOR PROJECT		30. REQUIREMENT FOR PROJECT	
31. REQUIREMENT FOR PROJECT		32. REQUIREMENT FOR PROJECT	
33. REQUIREMENT FOR PROJECT		34. REQUIREMENT FOR PROJECT	
35. REQUIREMENT FOR PROJECT		36. REQUIREMENT FOR PROJECT	
37. REQUIREMENT FOR PROJECT		38. REQUIREMENT FOR PROJECT	
39. REQUIREMENT FOR PROJECT		40. REQUIREMENT FOR PROJECT	
41. REQUIREMENT FOR PROJECT		42. REQUIREMENT FOR PROJECT	
43. REQUIREMENT FOR PROJECT		44. REQUIREMENT FOR PROJECT	
45. REQUIREMENT FOR PROJECT		46. REQUIREMENT FOR PROJECT	
47. REQUIREMENT FOR PROJECT		48. REQUIREMENT FOR PROJECT	
49. REQUIREMENT FOR PROJECT		50. REQUIREMENT FOR PROJECT	
51. REQUIREMENT FOR PROJECT		52. REQUIREMENT FOR PROJECT	
53. REQUIREMENT FOR PROJECT		54. REQUIREMENT FOR PROJECT	
55. REQUIREMENT FOR PROJECT		56. REQUIREMENT FOR PROJECT	
57. REQUIREMENT FOR PROJECT		58. REQUIREMENT FOR PROJECT	
59. REQUIREMENT FOR PROJECT		60. REQUIREMENT FOR PROJECT	
61. REQUIREMENT FOR PROJECT		62. REQUIREMENT FOR PROJECT	
63. REQUIREMENT FOR PROJECT		64. REQUIREMENT FOR PROJECT	
65. REQUIREMENT FOR PROJECT		66. REQUIREMENT FOR PROJECT	
67. REQUIREMENT FOR PROJECT		68. REQUIREMENT FOR PROJECT	
69. REQUIREMENT FOR PROJECT		70. REQUIREMENT FOR PROJECT	
71. REQUIREMENT FOR PROJECT		72. REQUIREMENT FOR PROJECT	
73. REQUIREMENT FOR PROJECT		74. REQUIREMENT FOR PROJECT	
75. REQUIREMENT FOR PROJECT		76. REQUIREMENT FOR PROJECT	
77. REQUIREMENT FOR PROJECT		78. REQUIREMENT FOR PROJECT	
79. REQUIREMENT FOR PROJECT		80. REQUIREMENT FOR PROJECT	
81. REQUIREMENT FOR PROJECT		82. REQUIREMENT FOR PROJECT	
83. REQUIREMENT FOR PROJECT		84. REQUIREMENT FOR PROJECT	
85. REQUIREMENT FOR PROJECT		86. REQUIREMENT FOR PROJECT	
87. REQUIREMENT FOR PROJECT		88. REQUIREMENT FOR PROJECT	
89. REQUIREMENT FOR PROJECT		90. REQUIREMENT FOR PROJECT	
91. REQUIREMENT FOR PROJECT		92. REQUIREMENT FOR PROJECT	
93. REQUIREMENT FOR PROJECT		94. REQUIREMENT FOR PROJECT	
95. REQUIREMENT FOR PROJECT		96. REQUIREMENT FOR PROJECT	
97. REQUIREMENT FOR PROJECT		98. REQUIREMENT FOR PROJECT	
99. REQUIREMENT FOR PROJECT		100. REQUIREMENT FOR PROJECT	

1. COMPONENT ARMY	FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA			2. DATE 11-19-80	
3. INSTALLATION AND LOCATION CAMP HUMPHREYS - KS 792, KOREA			4. PROJECT TITLE MODIFICATION OF DISHWASHER HEAT RECOVERY ECIP		
5. PROGRAM ELEMENT	6. CATEGORY CODE 72210	7. PROJECT NUMBER	8. PROJECT COST (\$000) 28		
9. COST ESTIMATES					
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)	
Primary Facility	EA	3	8127	24	
Dishwasher Waste Heat Recovery Systems, 1000-Man Mess				(24)	
Supporting Facilities				0	
Subtotal				24	
Contingency (10%)				2	
Total Contract Cost				26	
Supervision, Inspection and Overhead (6.5%)				2	
Total Request				28	
Installed Equipment - Other Appropriations				(0)	
10. DESCRIPTION OF PROPOSED CONSTRUCTION Buildings at Camp Humphreys are to be modified to achieve improved energy conservation. Installation of this system, which includes a cleanable heat exchanger, dishwater strainer and pump, potable water pump, associated piping, valves, insulation and controls, will recover heat from the dishwasher which would be rejected into the sewer. Insulation will satisfy criteria in DOD Manual 4270.1-M. No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped. Lists of individual buildings at Camp Humphreys which are to receive each modification are attached to this form. Types of construction are indicated on the building lists. Dishwasher waste heat recovery systems will be installed in 3 buildings.					
11. REQUIREMENT: PROJECT: The addition of this system will recover heat from the dishwasher					

1. COMPONENT ARMY	FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA		2. DATE 11-19-80	
3. INSTALLATION AND LOCATION CAMP CARROLL - KS 116, KOREA		4. PROJECT TITLE MODIFICATION FOR INSTALLATION OF CLOCK THERMOSTAT W/ OUTSIDE AIR THERMOSTAT OVERRIDE		
5. PROGRAM ELEMENT	6. CATEGORY CODE 740,610,872,141,841,219, 730,214,843,171,217,218, Series	7. PROJECT NUMBER	8. PROJECT COST (\$000) 43	
9. COST ESTIMATES				
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
Primary Facility				36
Clock Thermostat with Outside Air				(36)
Thermostat Override	EA	42	861.40	0
Supporting Facilities				36
Subtotal				4
Contingency (10%)				40
Total Contract Cost				3
Supervision, Inspection & Overhead (6.5%)				43
Total Request				(0)
Installed Equipment - Other Appropriations				
10. DESCRIPTION OF PROPOSED CONSTRUCTION <p>Buildings at Camp Carroll are to be modified to achieve improved energy conservation.</p> <p>Install 7-day time clock with set back feature, spring back-up (in case of power failure) and outdoor air thermostat override to reduce energy consumption on all warm-air furnaces.</p> <p>Insulation will satisfy criteria in DOD Manual 4270.1-M.</p> <p>No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped.</p> <p>Lists of individual buildings at Camp Carroll which are to receive each modification are attached to this form. Types of construction are indicated on the building list.</p> <p>Clock thermostat with outside thermostat override will be installed in 42 buildings.</p>				
11. REQUIREMENT: <u>PROJECT:</u> The addition of 7-day time clock with setback feature, spring back-up (in case of power failure) and outdoor air thermostat override				

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1. DATE 11-19-80	2. FISCAL YEAR 1983	3. DEPARTMENT ARMY		4. INSTALLATION CAMP CARROLL - KS 116	
5. PROPOSED AUTHORIZATION \$ 50,000		6. PRIOR AUTHORIZATION P.L. NONE		7. CATEGORY CODE NUMBER 821	
10. PROPOSED APPROPRIATION \$ 50,000		11. BUDGET ACCOUNT NUMBER 6100		12. PROJECT NUMBER	
13. PROJECT TITLE BOILER MODIFICATIONS		13. PROJECT TITLE BOILER MODIFICATIONS		NM	CM RM X

SECTION A - DESCRIPTION OF PROJECT				SECTION B - COST ESTIMATES			
14. TYPE OF CONSTRUCTION				20. PRIMARY FACILITY			
a. PERMANENT	18. PHYSICAL CHARACTERISTICS OF PRIMARY FACILITY			U/M	QUANTITY	UNIT COST	COST (\$000)
b. SEMI-PERMANENT	1. NO. OF BLDGS. 1 SEE ATTACHED LIST			EA	2	24,977	50
c. TEMPORARY	2. DESIGN CAPACITY NA						
	3. DESIGN CAPACITY NA						
	4. GROSS AREA NA						
	5. COOLING NA						
	6. CAP. NA						
	7. COST (\$ NA						
15. TYPE OF WORK				21. SUPPORTING FACILITIES			
a. NEW FACILITY	19. DESCRIPTION OF WORK TO BE DONE						
b. ADDITION	Install O ₂ trim controls on 2 boilers in the buildings						
c. ALTERATION	noted. The project included installation of an O ₂						
d. CONVERSION	sensor, analyser, controller, control panel and						
e. OTHER (Specify)	modification of modulating motor linkage for air/fuel						
	control on each boiler.						
	Bldg. Cat. Code						
	(2) at S1025 82120						
16. REPLACEMENT				22. TOTAL PROJECT COST			
17. TYPE OF DESIGN							
a. STANDARD DESIGN	X						
b. SPECIAL DESIGN							
c. DRAWING NO.							

23. QUANTITATIVE DATA		25. REQUIREMENT FOR PROJECT	
a. TOTAL REQUIREMENT	(U/M NA)	This project is required to meet stated goals of energy use reduction. It is submitted as part of the energy conservation investment program (ECIP). Installation of O ₂ trim controls will save fuel by automatically correcting the air/fuel ratio to account for variations in load, temperature, humidity and pressure. This project will result in 29.1 mega BTU annual energy savings per thousand dollars cost, and a benefit-to-cost ratio of 9.9. Total annual energy savings is estimated at 1,452 mega BTU. A total dollar savings of 32,998 per year will result in a simple payback period of 1.5 years. If this project is not effected, energy will continue to be needlessly wasted, contrary to national goals. This project has been reviewed and it has been determined that an EIS pursuant to PL 91-190 is not required.	
b. EXISTING SUBSTANDARD			
c. EXISTING ADEQUATE			
d. FUNDED, NOT IN INVENTORY			
e. ADEQUATE ASSETS (c + d)			
f. UNFUNDED PRIOR AUTHORIZATION			
g. INCLUDED IN FY PROGRAM			
h. DEFICIENCY (a - b - (f - g))			
24. RELATED PROJECTS	NA		

1. COMPONENT ARMY	FY 19 ⁸⁴ MILITARY CONSTRUCTION PROJECT DATA			2. DATE 11-19-80
3. INSTALLATION AND LOCATION CAMP CARROLL - KS 116, KOREA		4. PROJECT TITLE MODIFICATIONS FOR DISHWASHER HEAT RECOVERY ECIP		
5. PROGRAM ELEMENT	6. CATEGORY CODE 72210	7. PROJECT NUMBER	8. PROJECT COST (\$000) 10	
9. COST ESTIMATES				
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
Primary Facility	EA	1	8130	8
Dishwasher Waste Heat Recovery System (1000-Man Mess)				(8)
Supporting Facilities				0
Subtotal				8
Contingency (10%)				1
Total Contract Cost				9
Supervision, Inspection and Overhead (6.5%)				1
Total Request				10
Installed Equipment - Other Appropriations				(0)
10. DESCRIPTION OF PROPOSED CONSTRUCTION Buildings at Camp Carroll are to be modified to achieve improved energy conservation. Installation of this system, which includes a cleanable heat exchanger, dishwater strainer and pump, potable water pump, associated piping, valves, insulation and controls will recover heat form the dishwasher which would be rejected into the sewer. The recovered heat will be returned to the domestic hot water boiler, thus reducing oil consumption. Insulation will satisfy criteria in DOD Manual 4270.1-M. No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped. Lists of individual buildings at Camp Carroll which are to receive each modification are attached to this form. Types of construction are indicated on the building lists. Dishwasher waste heat recovery system will be installed in one building.				

1. COMPONENT ARMY		FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA		2. DATE 11-19-80	
3. INSTALLATION AND LOCATION CAMP HENRY - KS 160, KOREA			4. PROJECT TITLE MODIFICATION FOR INSTALLATION OF CLOCK THERMOSTAT WITH OUTSIDE AIR THERMOSTAT OVERRIDE		
5. PROGRAM ELEMENT		6. CATEGORY CODE 610,740,219,141,131, 730,214,171 Series		7. PROJECT NUMBER	
				8. PROJECT COST (\$000) 78	

9. COST ESTIMATES

ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
Primary Facility				66
Clock Thermostats with outside air thermostat override	EA	77	861.40	(66)
Supporting Facilities				0
Subtotal				66
Contingency (10%)				7
Total Contract Cost				73
Supervision, Inspection & Overhead (6.5%)				5
Total Request				78
Installed Equipment - Other Appropriations				(0)

10. DESCRIPTION OF PROPOSED CONSTRUCTION

Buildings at Camp Henry are to be modified to achieve improved energy conservation.

Install 7-day time clock with setback feature, spring back-up (in case of power failure) and outdoor air thermostat override on all warm-air furnaces.

Insulation will satisfy criteria in DOD Manual 4270.1-M.

No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped.

Lists of individual buildings at Camp Henry which are to receive each modification are attached to this form. Types of construction are indicated on the building lists.

Clock thermostats with outside air thermostat override will be installed in 52 buildings.

1. COMPONENT ARMY		FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA			2. DATE 11-19-80	
3. INSTALLATION AND LOCATION CAMP WALKER - KS 300, KOREA			4. PROJECT TITLE MODIFICATION FOR INSTALLATION OF CLOCK THERMOSTAT WITH OUTSIDE AIR THERMOSTAT OVERRIDE			
5. PROGRAM ELEMENT		6. CATEGORY CODE 730,141,610,740,540, 131,550,841,872,811, 211,214,530,219, Series		7. PROJECT NUMBER		8. PROJECT COST (\$000) 48
9. COST ESTIMATES						
ITEM				U/M	QUANTITY	UNIT COST
Primary Facility						41
Clock thermostats with outside air thermostat override				EA	48	861.40 (41)
Supporting Facilities						0
Subtotal						41
Contingency (10%)						4
Total Contract Cost						45
Supervision, Inspection & Overhead (6.5%)						3
Total Request						48
Installed Equipment - Other Appropriations						(0)
10. DESCRIPTION OF PROPOSED CONSTRUCTION						
Buildings at Camp Walker are to be modified to achieve improved energy conservation.						
Install 7-day time clock with set-back feature, spring back-up (in case of power failure) and outdoor air thermostat override on all warm-air furnaces.						
Insulation will satisfy criteria in DOD Manual 4270.1-M.						
No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped.						
Lists of individual buildings at Camp Walker which are to receive each modification are attached to this form. Types of construction are indicated on the building lists.						
Clock thermostats with outside air thermostat override will be installed in 41 buildings.						
11. REQUIREMENT:						
PROJECT: The addition of 7-day time clocks with set-back feature, spring back-up (in case of power failure) and outdoor air thermostat override will reduce energy consumption.						

1. COMPONENT ARMY	FY 19 <u>84</u> MILITARY CONSTRUCTION PROJECT DATA			2. DATE 11-19-80	
3. INSTALLATION AND LOCATION CAMP WALKER - KS 300, KOREA			4. PROJECT TITLE MODIFICATION FOR DISHWASHER HEAT RECOVERY ECIP		
5. PROGRAM ELEMENT	6. CATEGORY CODE 72210	7. PROJECT NUMBER	8. PROJECT COST (\$000) 10		
9. COST ESTIMATES					
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)	
Primary Facility	EA	1	8130	8	
Dishwasher Waste Heat Recovery Systems, 1000-Man Mess				(8)	
Supporting Facilities				0	
Subtotal				8	
Contingency (10%)				1	
Total Contract Cost				9	
Supervision, Inspection and Overhead (6.5%)				1	
Total Request				10	
Installed Equipment - Appropriations				(0)	
10. DESCRIPTION OF PROPOSED CONSTRUCTION					
<p>Buildings at Camp Walker are to be modified to achieve improved energy conservation.</p> <p>Installation of this system, which includes a cleanable heat exchanger, dishwater strainer and pump, potable water pump, associated piping, valves, insulation and controls, will recover heat from the dishwasher which would be rejected into the sewer.</p> <p>Insulation will satisfy criteria in DOD Manual 4270.1-M.</p> <p>No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped.</p> <p>Lists of individual buildings at Camp Walker which are to receive each modification are attached to this form. Types of construction are indicated on the building lists.</p> <p>Dishwasher waste heat recovery system will be installed in 1 building.</p>					

1. COMPONENT ARMY	FY 1984 MILITARY CONSTRUCTION PROJECT DATA			2. DATE 11-19-80
3. INSTALLATION AND LOCATION CAMP WALKER (FH) - KS 300, KOREA		4. PROJECT TITLE MODIFICATION FOR DOMESTIC HOT WATER HEATER REPLACEMENT		
5. PROGRAM ELEMENT	6. CATEGORY CODE 711 Series	7. PROJECT NUMBER	8. PROJECT COST (\$000) 264	
9. COST ESTIMATES				
ITEM	U/M	QUANTITY	UNIT COST	COST (\$000)
Primary Facility	EA	96	2343.9	225
Oil Fired Water Heaters and Associated Trim				(225)
Supporting Facilities				0
Subtotal				225
Contingency (10%)				23
Total Contract Cost				248
Supervision, Inspection and Overhead (6.5%)				16
Total Request				264
Installed Equipment - Other Appropriations				(0)
10. DESCRIPTION OF PROPOSED CONSTRUCTION <p>Buildings at Camp Walker are to be modified to achieve improved energy conservation.</p> <p>Installation of oil fired water heaters and associated trim to replace electric water heaters, thereby reducing electrical consumption.</p> <p>Insulation will satisfy criteria in DOD Manual 4270.1-M.</p> <p>No provisions for the handicapped will be made because the scope of the project is in no way applicable to the handicapped.</p> <p>Lists of individual buildings at Camp Walker which are to receive each modification are attached to this form. Types of construction are indicated on the building lists.</p> <p>Oil fired water heaters and associated trim will be installed in 96 dwelling units.</p>				
11. REQUIREMENT: <p><u>PROJECT:</u> The addition of oil fired water heaters and associated trim to replace electric water heaters, will reduce electrical consumption.</p>				